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FOR QUARTER CENTURY THE BRICKBUILDER

MARCH 1917

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PLATE ILLUSTRATIONS

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RUINS OF THE CATHEDRAL OF ST. MARTIN AT YPRES, BELGIUM

AFTER AN ETCHING BY GEORGE T. PLOWMAN

THE Cathedral of St. Martin stood behind the Cloth Hall and within a short distance of it. It was a work of the thirteenth century, while the tower, 190 feet high, was added in the fifteenth century. The small view shows the former appearance of the interior, from very nearly the same point of view as that of the etching.

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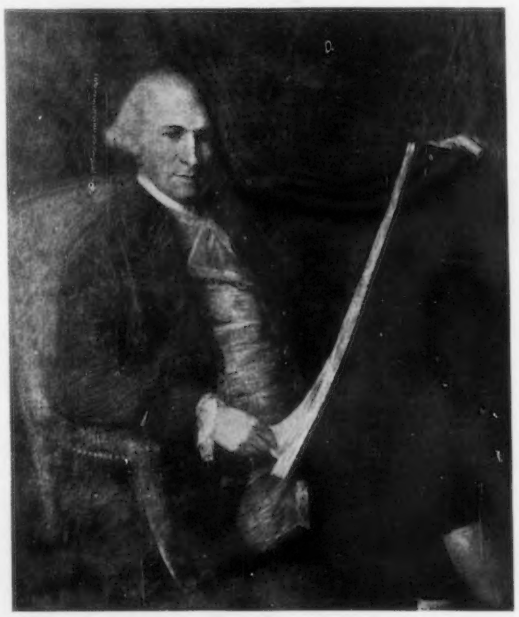
The Adam Style*

PART II. INTERIOR DESIGN AND ORNAMENT

By HARBOROUGH DESMOND UPTON

ADAM ornament offers a most interesting and plentiful field for study. In this particular phase of their work the Adam brothers were so versatile and prolific that one hardly knows where to begin or what line of analysis to pursue. The many varieties of ornamental work to which these gifted architects gave their attention would probably have resulted in mediocrity with the average designer, who would either have slurred over the less interesting details, or else have become so befogged by them that his ability to study the larger and broader architectural problems would have been seriously impaired. The Adam brothers, however, do not seem to have been fettered by either of these handicaps, and though they apparently lavished great care and attention on the most trivial bit of ornamental detail, their work in the broader phases of architectural design shows that they remained unhampered both in breadth and in clearness of conception and logic.



Portrait of Robert Adam

One reason why their work has so much charm is that they gave serious attention to studying it to the very last detail. How many designers there are who have evidently lost interest in the *minutiæ* of the building they are creating, and who in consequence spoil the final result by insufficiently studying the detail! It has been truly said that it is far easier to *begin* a building than to *finish* one, and this applies just as much to the architectural design as to the structural features. There are often so many little (and sometimes big) uninteresting spots in the design, where one feels that if only a little attention and study had been given, the results would have been very different, or where the observer is tempted to believe that the designer lacked imagination and that his stock of ideas and his interest in the work were exhausted after the general scheme was blocked out!

This fault can never be laid at the Adams' door, nor on the other hand can they be censured for overdoing their ornament and confusing the interest. Even in the most intricate and complicated decorative scheme there is always some dominant feature that stands out as the central motif for which all the other interweavings of decoration are intended to serve merely as the background.

This care and evident enjoyment with which every last detail has been studied, not only by itself but also in its relation to the entire scheme, is a marked characteristic of Adam work, and is one essential quality that must be thoroughly absorbed and understood in using this style. If the designer likes the style, there should really be no difficulty in his lavishing all the interest in his makeup on the study of the detail, for the motifs are so delightfully dainty and graceful that the real trouble lies in knowing when and where to stop; and this brings us to another characteristic of Adam work—the Adam brothers *knew where to stop* and did not allow themselves to fall into the pit of confusion that aimless and meaningless overornamentation holds for the unwary and inexperienced designer.

For their exterior work the Adam brothers usually showed a greater restraint in ornamentation than with their interior design. The ornament is studied primarily with the intent to bring out the general scheme of the composition and to add those touches of richness that enhance, rather than destroy, the splendid simplicity of the design, serving as punctuation marks that emphasize and clarify the composition and carry the eye along the lines that should be followed in order to appreciate fully the value of the ensemble.

This is the real art of ornamentation, and therein lies the fundamental value of the use of ornament. It is so easy to cover a design with decoration, yet so difficult

*NOTE. Illustrations from "Works in Architecture of Robert and James Adam," London, 1822, and "Robert Adam and His Brothers," by John Swarbrick, published by B. T. Batsford, London.

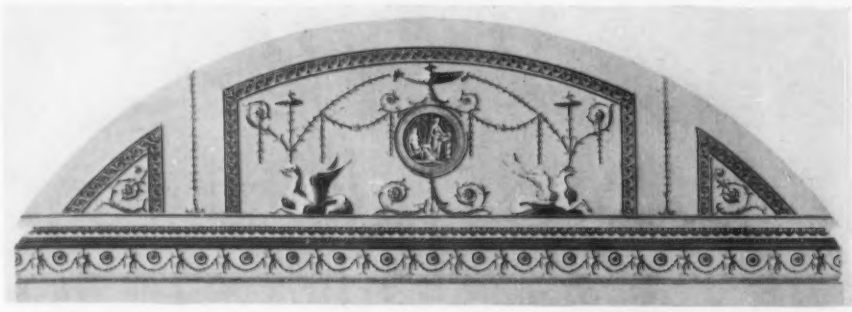
to bring order out of chaos and have the result anything more than a confused jumble of motifs, which, while perhaps each a gem in itself, are only a meaningless and uninteresting spatterwork when viewed as a whole.

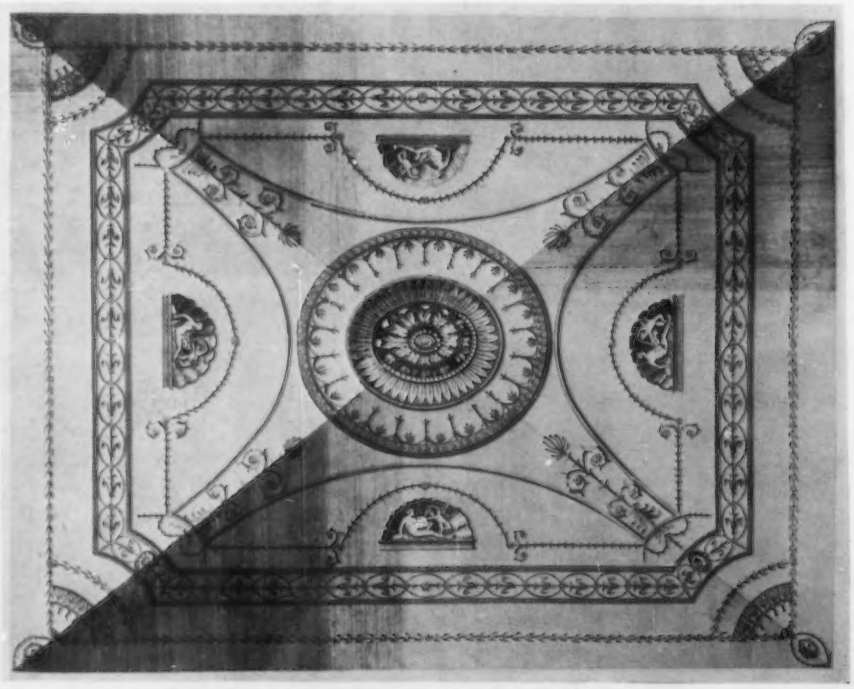
We find in Adam ornament a certain definite flow of line that ties the composition together and leads easily and gracefully from one point of interest to the next. Isolated or interrupting plaques were introduced where, in the judgment of the designer, they either arrested the smooth flow of the ornament or gave a spot of interest or a note of contrast, and so prevented monotony. In interior work these plaques lent themselves particularly to the use of color, usually the so-called "Wedgwood" tones, that added greatly to the interest of the decorative scheme and permitted the introduction of such gems of ornament as could hardly have been produced by any other means; moreover, by the depth, vigor, and richness of the color, and the strength and action of the figures brought out like cameos in these plaques, the entire composition acquired a robustness and strength almost incredible, considering the light and delicate character of graceful elements out of which it was built.

These "graceful elements," however, when carefully studied and analyzed, are found to be by no means weak or characterless. Every line, every phase of modeling in the original work, bears the evidence of careful study to ensure its fulfilling its purpose in the design. Even the most dainty string of beads, looping in a graceful curve from one point to another in the composition, will be absolved from any stigma of weakness by the clever increase in the size of the beads at the lowest part of the curve, or by the introduction of some ornamental feature of especially vigorous line, while the feature itself is scaled down to an appropriate size in order not to destroy the value of the bead garland.

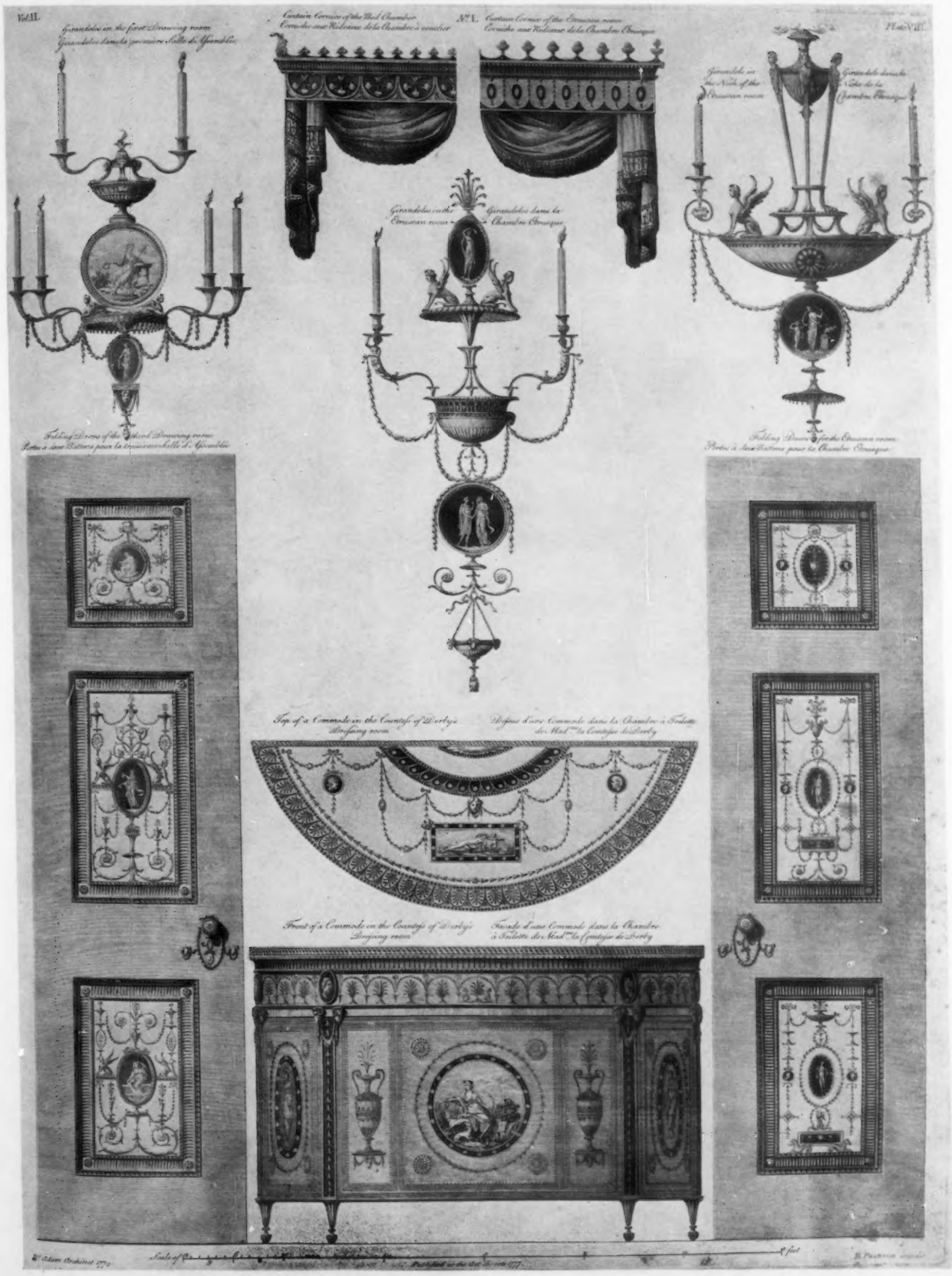
The modeling of acanthus leaves in *rinceaux* or other decorative motifs always plays an important part in the scheme. At times the relief will be flat and colorless for the definite purpose of not making it overprominent and thereby destroying the value of some other part of the design intended to be more important. Then again, by a turn of a lobe here and there, by the vigorous bringing out of the veins and lines of the leaves, by a back turn or reverse movement, and by a hundred other niceties of modeling, a thin *rinceau* will be given as much strength as could be obtained in a more heavy and solid Renaissance *rinceau*, but saved from the defect of being as cumbersome and unwieldy as the latter. The "husks" and the "honeysuckle" motifs can each be found in a dozen or more different characters, differing entirely from one another in contour and modeling, and each filling a special requirement in the particular composition where it occurs.

It is in these niceties of differentiation, in the careful balance of values, and the special treatment of the component parts of the design, just as much as in the graceful flow of the lines of the composition, that Adam ornament is so difficult to imitate; for even an original Adam drawing would not serve as a talisman of success if the person using it were not acquainted with the refinements of modeling that are so vitally a part of the style. Unless particular care and attention are given to studying the modeling, especially in this country where the majority of the modelers in ornamental plaster shops are either Italians or Frenchmen, a perfectly good Adam design will develop into a mixture of Empire, Pompeian, and Renaissance, and betray not a single trace of true Adam character. Even such a typical Adam motif as the much overworked "web" can be absolutely denatured by incorrect curvature of the surfaces or by the loss in play of light





Side Wall and Ceiling in Anteroom at Sion House, near London

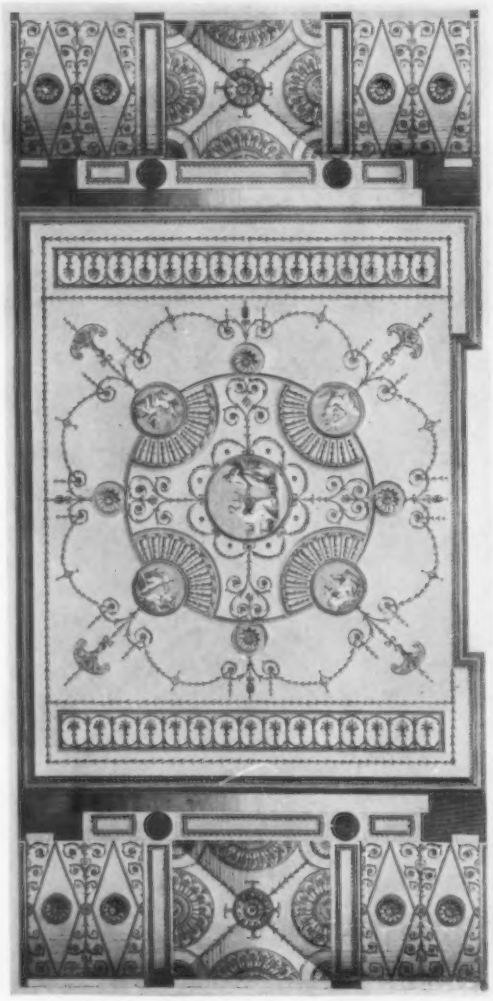


Details and Furniture from the Earl of Derby's House, Grosvenor Square, London

and shade due to having insufficient projection for the ribs, or by having too great a rib projection that makes the web a gross caricature of the style.

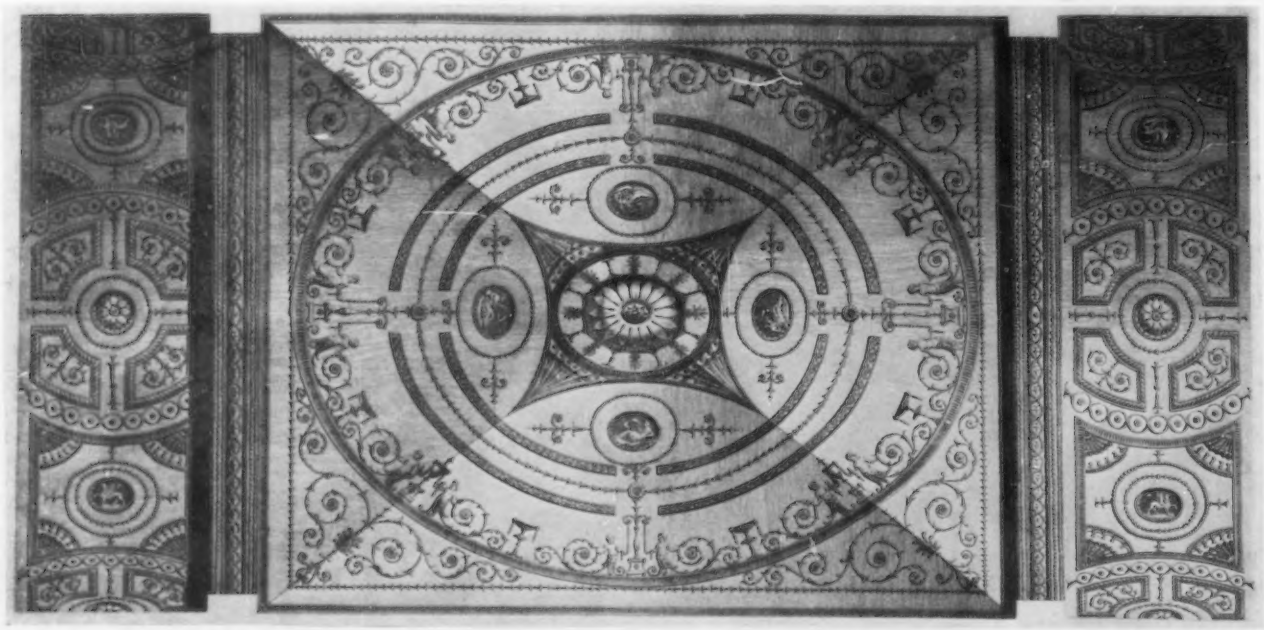
The reader will no doubt say that it is all very well to describe these niceties of modeling in Adam ornament, but where are they to be studied in this country if the original Adam drawings are not a sufficient guide? The drawings in the "Works in Architecture of Robert and James Adam," and photographs of Adam work to be found by diligent search in architectural libraries (for they are seldom classified under "Adam style"), or the illustrations in the recent excellent work by Mr. John Swarbrick, entitled "Robert Adam and His Brothers," will serve as a preliminary guide in the matter of silhouette and mass. From these plates a great deal can be learned by careful and analytical study, and the student will lay for himself a fairly sound foundation in the essentials of the style.

For the actual modeling of the ornament much can be learned by carefully and critically studying in the showrooms of reputable antique dealers such objects as mantelpieces, girandoles, candelabra, mirror frames, carved furniture, etc., that are vouched for as genuine Adam work or good examples of the Adam school. These will afford valuable instruction to the student with quick and discerning eyes.

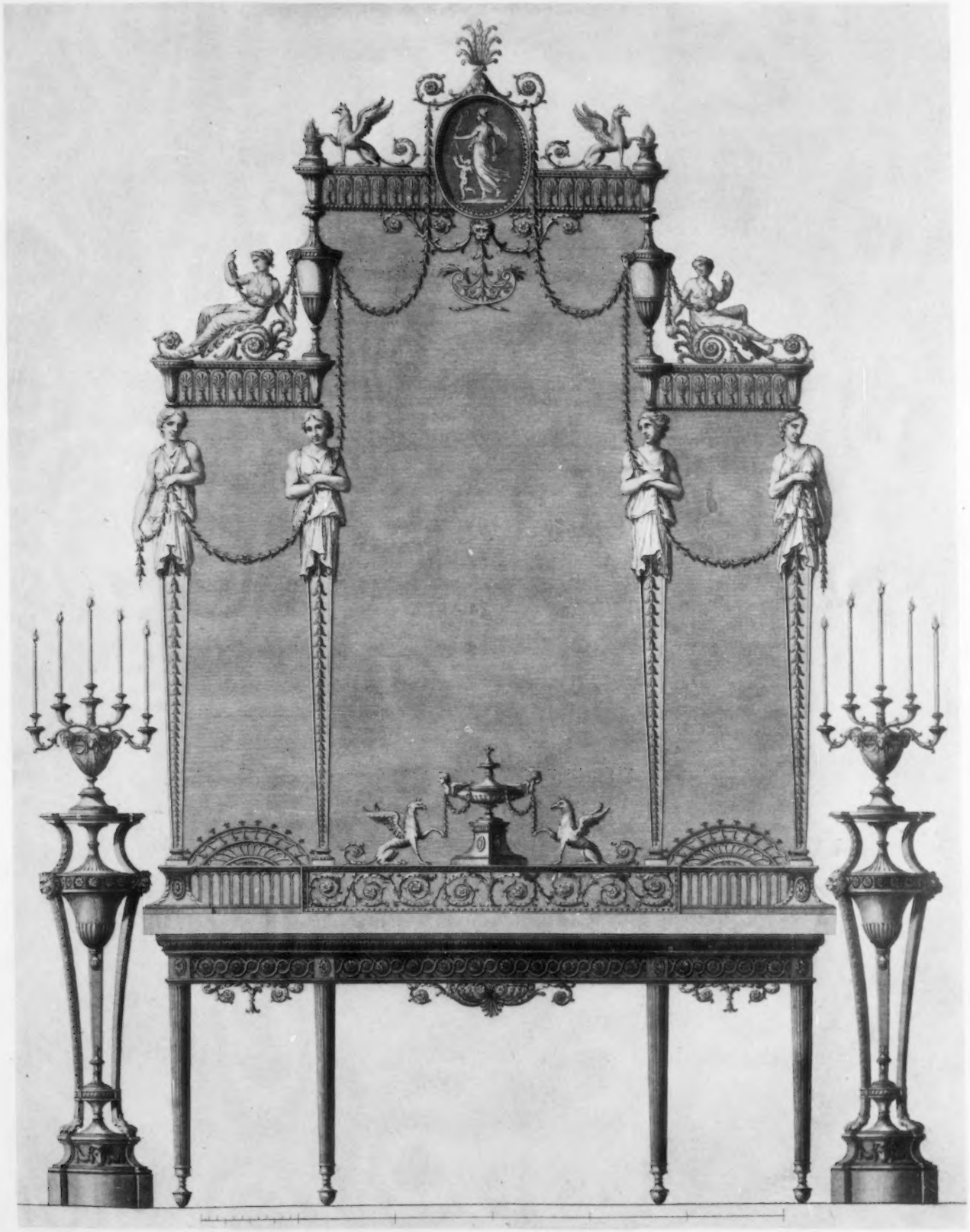


Ceiling from Sir Watkins William Wynn's House

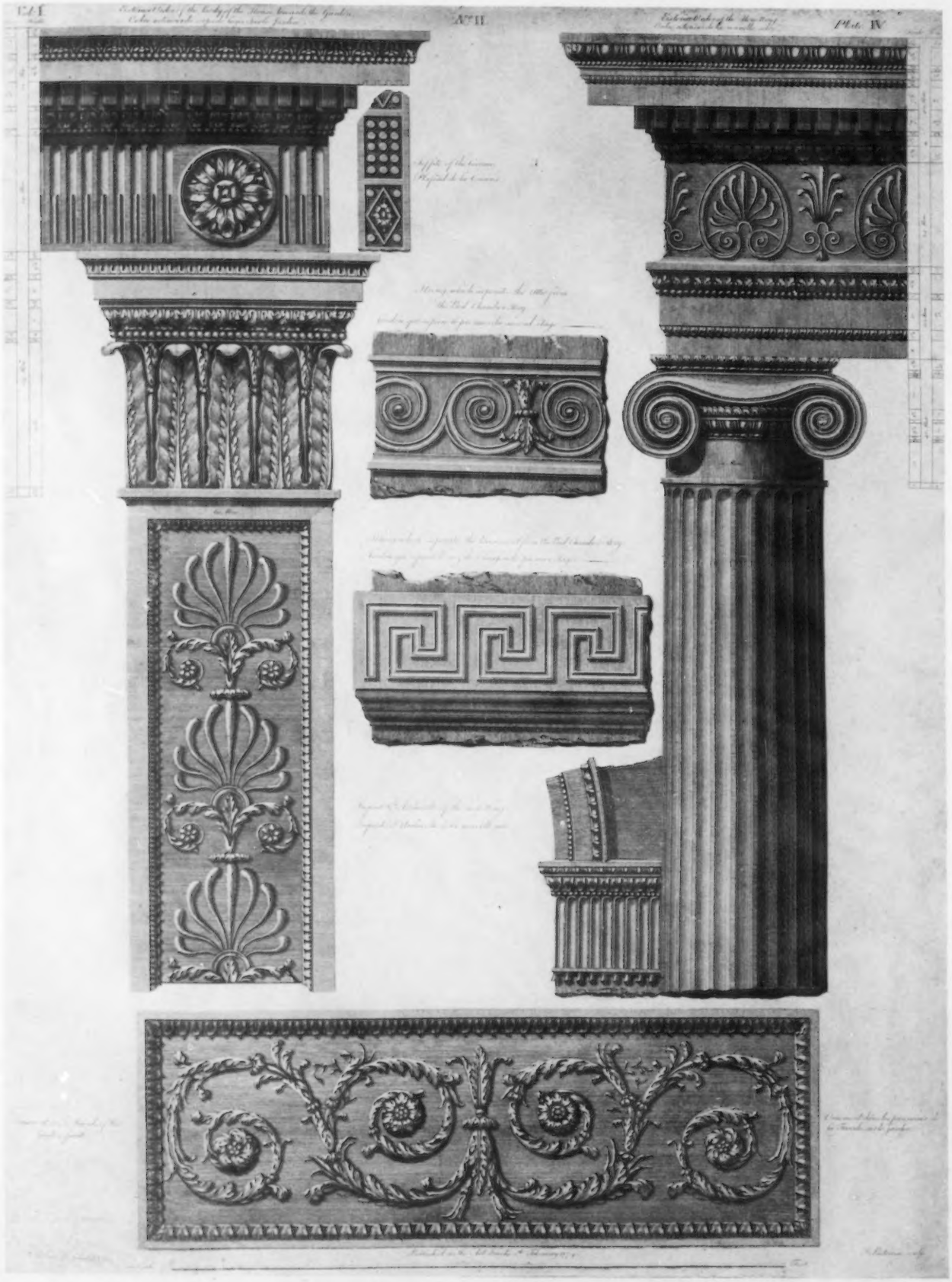
For a more comprehensive study of the Adam style, both in design and detail, there is a wealth of excellently composed and well executed Adam ornament in the Ritz-Carlton Hotel, New York City, and in the Carlton Hotel, Montreal, all of which is the result of careful study of original Adam work in England. Special attention was paid to the modeling of the ornament in these buildings to keep it true to the spirit and character of the original work, and in several cases the ornament was modeled from casts made from the same boxwood moulds used in casting the ornament designed by the Adam brothers themselves. Some parts of the ornamental ironwork in the Ritz-Carlton Hotel are original Adam work, or were recast where necessary from moulds made directly from the originals. Many of the mantelpieces are authentic, and girandoles, candelabra, tripods, and other decorative features are



Ceiling from Sir Watkins William Wynn's House, St. James Square, London



Drawing Room Glass and Table for the Earl of Bute



Exterior Ornamental Details from Lord Mansfield's Villa at Kenwood, Middlesex

Interior Ornamental Details from Luton House, Bedfordshire, built for the Earl of Bute

modeled or adapted from original Adam examples, found after a diligent and thorough searching of the most reliable antique shops in London.

The Ritz-Carlton Hotel is a veritable museum of carefully selected Adam work, and it is really due to the care and conscientious study displayed in this building and in its furnishings and appointments that there has been such a great interest in the Adam style in this country. Prior to the erection of this hotel there were, of course, many excellent examples of Adam work in America, either originals or modern copies; but as they were chiefly confined to private dwellings and were mostly interior decorations or furniture, these gems were hidden from general view and therefore of no educational value save to the owners and their intimate friends.

Dining Room, Harewood House, London

Accompanying this article are a few reproductions from "The Works in Architecture of Robert and James Adam" which have been selected as illustrating some of the most characteristic motifs and elements of Adam ornament. The details from "Kenwood" give excellent examples of an acanthus and anthemion arabesque, a water-leaf cap, frieze ornamentations of fluting and rosettes on one entablature and anthemion decoration on another. The acanthus *rinceau* in the panel detail is a very good and typical example, and shows as far as is possible in a drawing the spirit of Adam ornament of this kind.

For the details from Luton House we cannot do better than quote the description written by the Adam brothers themselves in reference to this particular plate: "The capital of the order in the saloon is altered from an antique one, the drawing of which his Lordship brought from abroad, and is an example of the latitude which the ancients took in compositions of this kind. A similar latitude is taken with regard to the composition of the cornice which is not subjected to any of the customary rules, yet we have the satisfaction to find it has been approved by men of taste.

"The capital to the screen of columns in the great stairs is also new. These having been very closely imitated in various places . . . shew the approbation they have met with from the public.

"It does not appear necessary to mention the rest of the detail in this plate, which will not be found altogether of the common type hitherto used." This last sentence expresses truthfully one of the charms of the Adam style, for the individuality and gracefulness of Adam ornamental detail lifts it far above "the common type hitherto used" (if not since!), and there is a subtle, aristocratic element in Adam ornament that gives to it a refinement lacking in many other styles or periods.

The illustrations of the furnishings and "finishings" from the Earl of Derby's house are all good specimens, and the drawing-room glass and table designed for the Earl of Bute contain inspiration for a dozen or more compositions of Adam decoration. The motifs are all typical, well balanced, and true to style. The composition also is a very characteristic example of Adam work.

The ceilings from the famous house of Sir Watkins William Wynn, St. James Square, London, while perhaps not the best examples of the Adam ceiling design, are at least very good types to study on account of the ornamental elements employed and the general grouping of the motifs forming the design. The ceiling of the anteroom of Sion House is an interesting example and is well worth studying carefully, as it contains some typical Adam motifs. The dining room of Harewood House is also an excellent example of the application of Adam ornament.

The illustrations here reproduced will, it is hoped, serve to stimulate a greater recourse to the original documents and plates from which they were taken. The three volumes of the "Works" are available to the student in almost every large city possessing a well equipped architectural library, and are to be preferred to any of the reprints which, as is usual in such publications, have lost much of the clearness of the plates from which they were reproduced.

It is to be regretted that in the crowded curriculum of architectural courses only brief mention (if any at all) is made of the Adam style, on the theory no doubt that it is necessary to give the students as thorough a knowledge as possible of the "classic" styles, leaving the study of the offshoots from these styles to future chance or inclination.

In the case of the Adam style, however, with its simple dignity of composition and wealth of graceful ornamental motifs, it would seem that more recognition should be given, and that every well planned course in archæology ought to require at least one problem in this style in order to cultivate a desire for further research and study when the purely academic course was completed.

Details of Italian Renaissance Architecture

MEASURED DRAWINGS BY MAURICE P. MEADE

THE work of the Italian Renaissance is notable for its great skill in detail and execution, and these drawings of doorways have been made to emphasize this point. Although they show general dimensions and proportions of openings, their greatest interest is in the detail of the architraves. The relatively slight reveal of all these examples should be noted, as well as the fact that the doors, in general, are hung directly on the masonry jambs without a wood frame. The mouldings used are very refined, and their ornament contrasts effectively with the plain surface of the fascias. Sometimes the architrave members return on themselves at the base, while in other cases they are cut off squarely on the face of the jamb, and these two treatments are often used together in the same building.

The central doorway of the church of San Marco, under the loggia on the Piazza Venezia, is flanked by pilasters. The architrave is unusually simple, the pilasters and their entablature, on the contrary, being considerably ornamented. The opening is 8 feet 2 inches by 15 feet. The architraves of the side doors are richly moulded, though without carving. They are identical except for the inscriptions in the frieze. The work is attributed to the architect Filarete.

Side Doorway, Church of San Marco, Rome

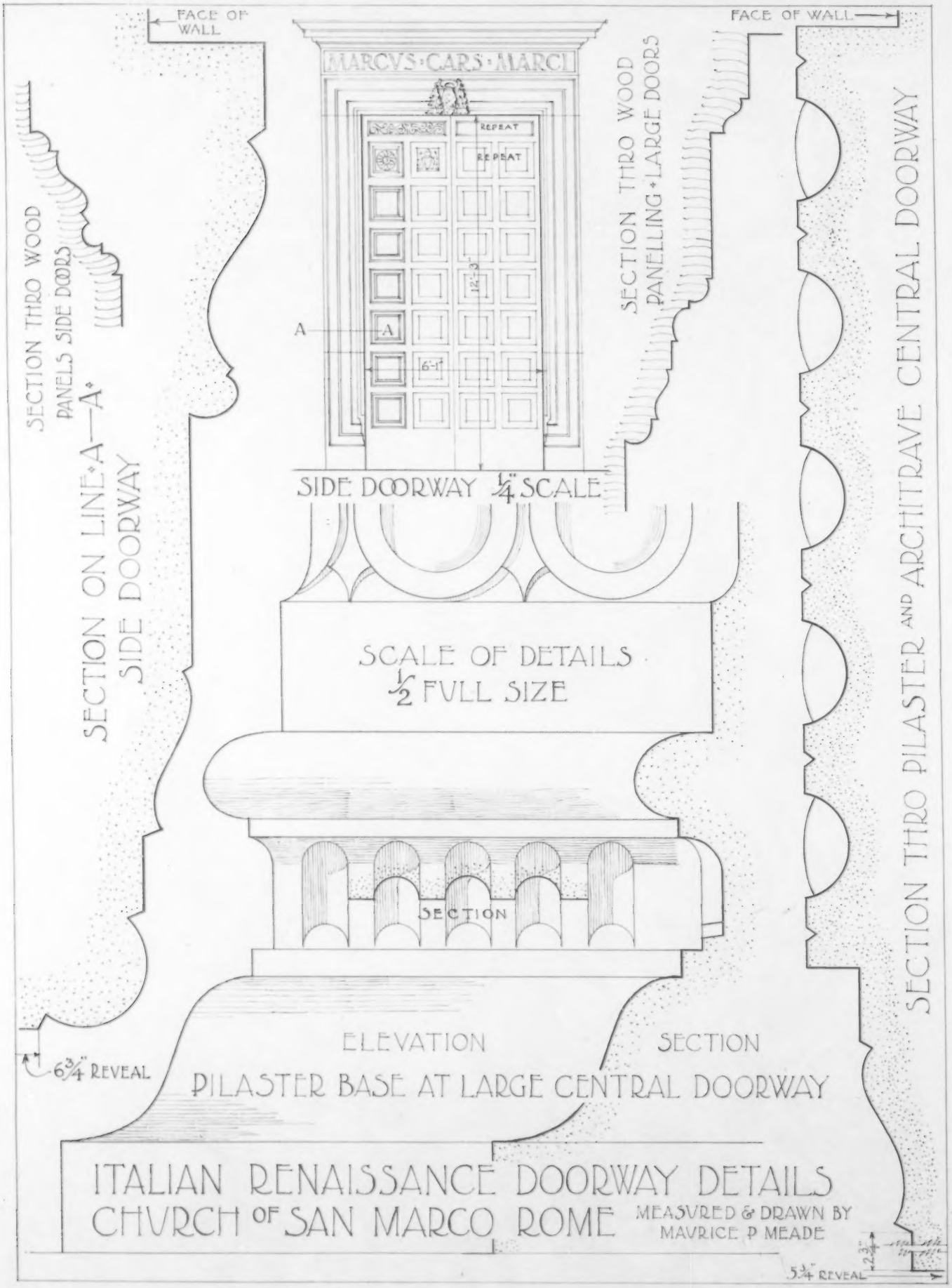
The doorways of San Giacomo degli Spagnuoli, in the Piazza Navona, attributed to the architect Pontelli, were executed about 1450. The central doorway is particularly rich in its decoration, the rope moulding being an unusual feature. The broad, unbroken architrave is also a rarely used feature.

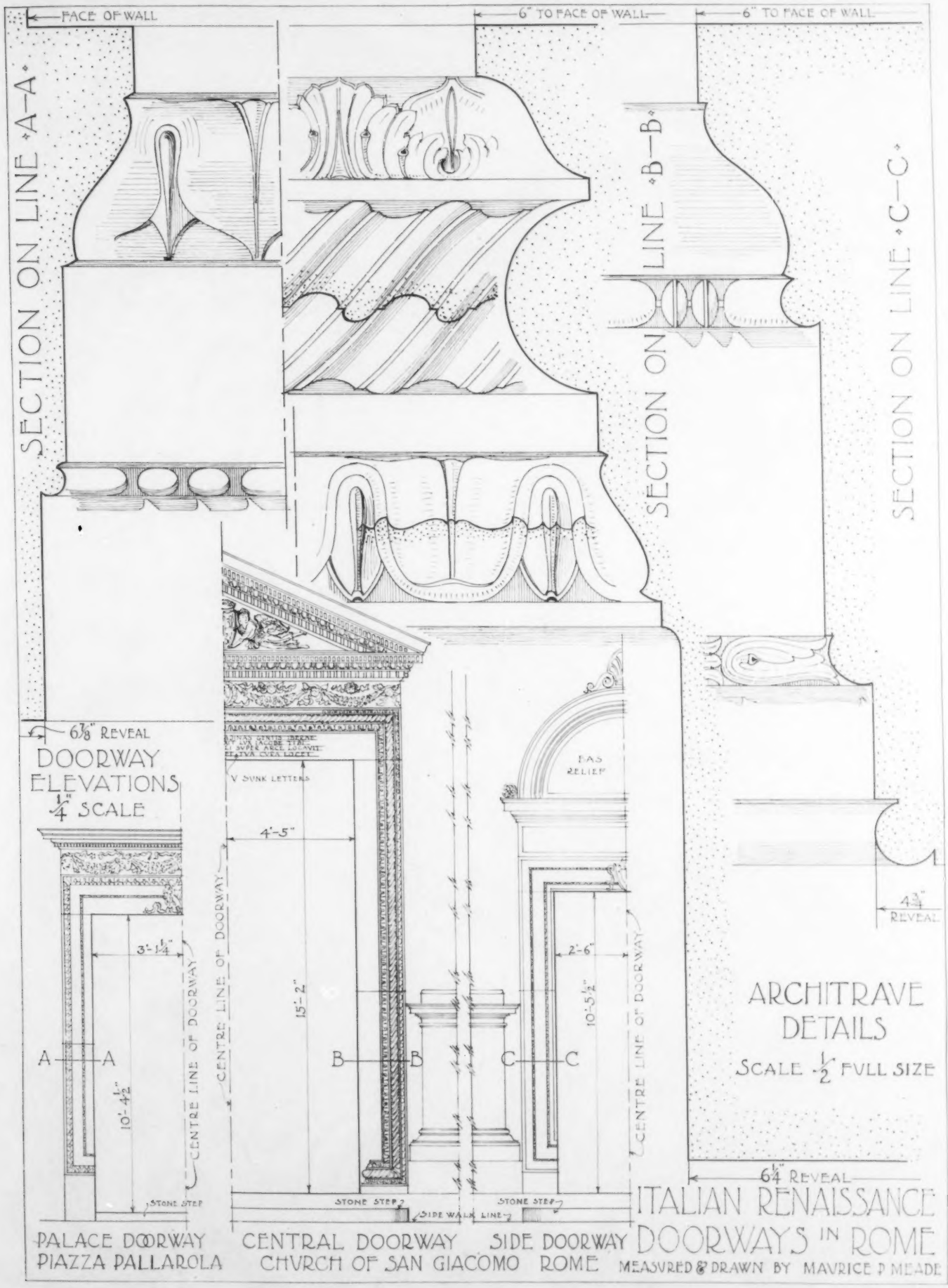
The doorway of the palace on the Piazza Pallarola is very similar to the side doorways of San Marco in design, but has different mouldings and richer ornament. The doorways of Santa Maria del Popolo are very similar to those of San Giacomo in general type, though simpler in treatment, and form the chief features of a very plain front.

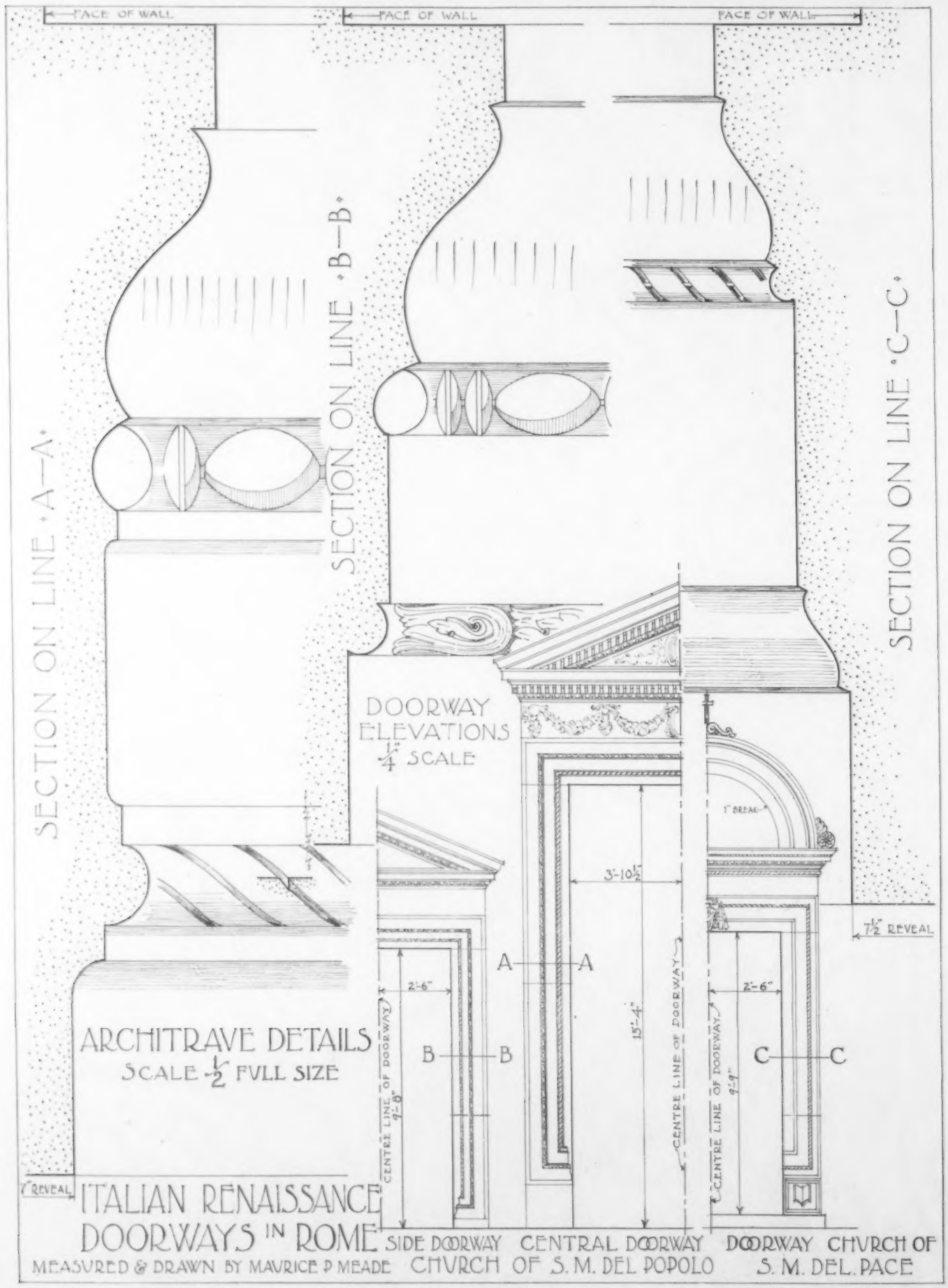
Central Doorway, Church of San Marco, Rome

Central Doorway, Church of San Giacomo, Rome

Doorway of Palace, Piazza Pallarola, Rome


FACE OF WALL
SECTION THRO WOOD PANELS SIDE DOORS
SECTION ON LINE A—A
SIDE DOORWAY
MARCVS·CARS·MARCI
REPEAT
REPEAT
12'-3"
A
A
6'-1"
SIDE DOORWAY 1/4" SCALE
SECTION THRO WOOD PANELLING · LARGE DOORS
FACE OF WALL
SECTION THRO PILASTER AND ARCHITRAVE CENTRAL DOORWAY
SCALE OF DETAILS
1/2 FULL SIZE
SECTION
ELEVATION
SECTION
A
6 3/4" REVEAL
PILASTER BASE AT LARGE CENTRAL DOORWAY
ITALIAN RENAISSANCE DOORWAY DETAILS
CHURCH OF SAN MARCO ROME
MEASURED & DRAWN BY
MAURICE P MEADE
2 3/4"
5 3/4" REVEAL


FACE OF WALL
6" TO FACE OF WALL
6" TO FACE OF WALL
SECTION ON LINE ·A–A·
SECTION ON LINE ·B–B·
SECTION ON LINE ·C–C·
6⅞" REVEAL
DOORWAY ELEVATIONS
¼" SCALE
V SUNK LETTERS
BAS RELIEF
4'-5"
3'-1¼"
15'-2"
2'-6"
10'-5½"
10'-4½"
A A
B B
C C
CENTRE LINE OF DOORWAY
CENTRE LINE OF DOORWAY
CENTRE LINE OF DOORWAY
STONE STEP
STONE STEP
SIDE WALK LINE
STONE STEP
4¾" REVEAL
ARCHITRAVE DETAILS
SCALE - ½ FULL SIZE
6¼" REVEAL
PALACE DOORWAY
PIAZZA PALLAROLA
CENTRAL DOORWAY SIDE DOORWAY
CHURCH OF SAN GIACOMO ROME
ITALIAN RENAISSANCE DOORWAYS IN ROME
MEASURED & DRAWN BY MAURICE P MEADE


FACE OF WALL
FACE OF WALL
FACE OF WALL
SECTION ON LINE 'A—A'
SECTION ON LINE 'B—B'
SECTION ON LINE 'C—C'
DOORWAY ELEVATIONS
1/4 SCALE
ARCHITRAVE DETAILS
SCALE 1/2 FULL SIZE
1" BREAK
3'-10½"
7½" REVEAL
A
A
B
B
C
C
2'-6"
2'-6"
15'-4"
9'-8"
9'-9"
CENTRE LINE OF DOORWAY
CENTRE LINE OF DOORWAY
CENTRE LINE OF DOORWAY
1" REVEAL
ITALIAN RENAISSANCE DOORWAYS IN ROME
MEASURED & DRAWN BY MAURICE P MEADE
SIDE DOORWAY CHURCH OF S. M. DEL POPOLO
CENTRAL DOORWAY CHURCH OF S. M. DEL POPOLO
DOORWAY CHURCH OF S. M. DEL PACE

Practical Perspective Methods for Office Use

By ROBERT FULLER JACKSON

FIRST PAPER

THE use of perspective drawings in architects' offices is so general and important that no draftsman's training can be considered complete without a fair knowledge of the subject. Unfortunately, most draftsmen dislike perspective work and never attain proficiency in it, because as ordinarily taught it is unnecessarily slow and tedious. The purpose of these articles is to explain some methods and devices by means of which the work of laying out perspective drawings may be materially lessened. These methods are not original, but they are far less known than they should be, in view of their great value to the profession.

In approaching the subject, a few definitions are necessary. The following is a list of the terms and abbreviations most generally used, with an explanation of their meaning. While this is the general use of these terms, they vary somewhat in different treatises on the subject.

PICTURE DIAGRAM — the image projected upon the picture plane seen in elevation from the front side, including the perspective projection of the object, called the picture.

P.P. — PICTURE PLANE — vertical plane of projection on which the picture is made.

S.P. — STATION POINT — the observer's EYE.

C. of V. or C.V. — CENTER OF VISION — the point directly opposite the eye and level with it.

VISUAL ANGLE or ANGLE OF VISION — the angle determined by the extreme limits of the object included in the picture from the observer's eye.

C.L.V. or C.L. — CENTER LINE OF VISION — formed by the vertical plane through the S.P. with horizontal planes in plan, and with P.P. in the picture diagram seen in elevation.

RECEDING LINE — one that is not parallel to P.P.

VANISHING LINE — one that goes to a V.P. in perspective.

V.P. — VANISHING POINT.

D.P. — DISTANCE POINT — the V.P. of a line at 45 degrees to P.P. in plan.

D.V.P. — DIAGONAL V.P. — or V.P. of the bisector of an angle of 90 degrees in any plane.

M.P. — MEASURE POINT — the V.P. of a line which

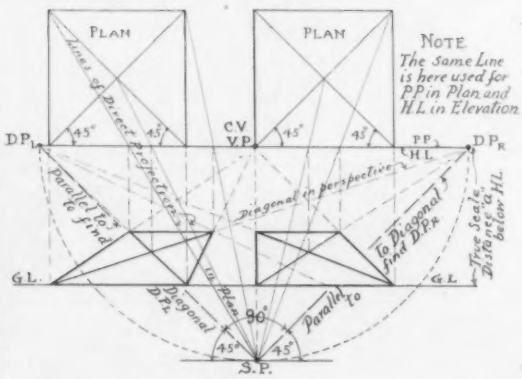


Figure 1

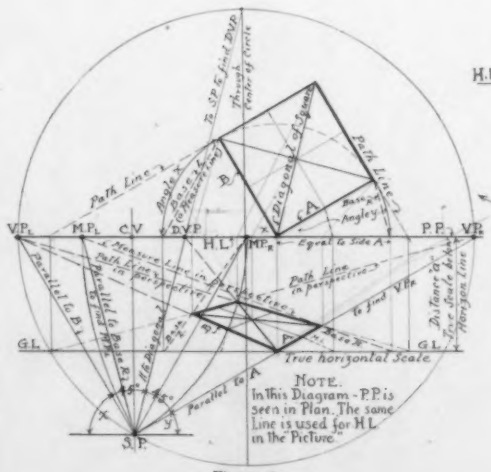


Figure 2

NOTE.
In this Diagram - P.P. is seen in Plan. The same Line is used for H.L. in the Picture.

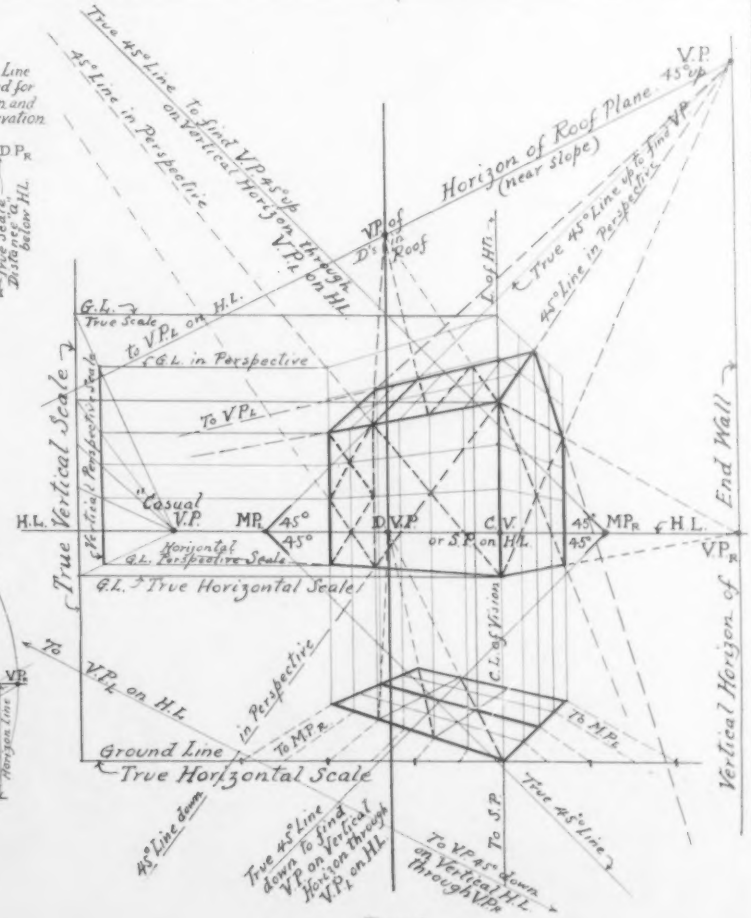


Figure 3

makes equal angles with a receding line and with P.P. in plan.

H.L. — Horizon Line — the eye level in the picture diagram, or section diagram, or on elevations.

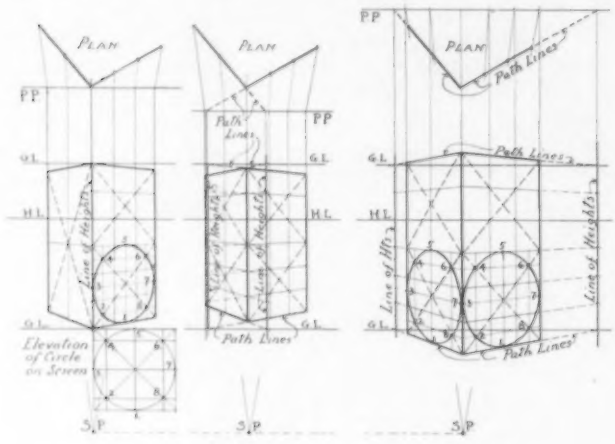


Figure 4 Figure 5 Figure 6

Other H.L.'s or Vanishing Trace of Planes — used loosely to denote any line toward which parallel planes vanish in perspective, whether the planes are horizontal, vertical, or inclined. The drawings show that no confusion results from this notation.

G.L. — Ground Line — the horizontal scale line formed on P.P. by any horizontal plane which cuts it.

L. of Hts. — line of heights or vertical scale line.

A perspective drawing can be made without the use of V.P.'s or M.P.'s, but the time saved by their use is worth saving if there are several parallels to be drawn.

Any V.P. (whether a V.P., D.P., D.V.P., or a M.P) is found on P.P. by drawing through S.P. in plan a vanishing line parallel to the given line whose V.P. is required.

The V.P. is then transferred to the horizon in the picture and used for all lines parallel to the given line.

Measure Points. The theory of the M.P.'s is simple. In Figs. 1 and 2 receding lines vanish to their proper V.P.'s. To divide or mark off in perspective these lines into definite divisions or lengths, the principle of the isosceles triangle is used. Lines drawn parallel to the base of an isosceles triangle cut its equal sides in the same measures or divisions. The receding lines are drawn in perspective, and the required divisions are laid off on the other sides in the P.P (on a G.L.) and taken to the V.P.'s of the bases of the isosceles triangles. In Fig. 1 the base makes an angle of 45 degrees with P.P., and its V.P. is D.P., which is thus the M.P. for perpendiculars to P.P. In Fig. 2 the V.P.'s of the bases of the two isosceles triangles formed by them and the receding lines and the sides in P.P. are the M.P.'s of the receding lines. The short way of finding any M.P. of a line is to lay off the distance from its V.P. to S.P. on H.L. This obviates the use of the plan in fixing M.P. on H.L. Fig. 2 also shows two ways for finding the D.V.P. (1) By drawing a vertical through the center of H.L., between the two V.P.'s, and connecting the upper end (on the circle) with S.P. Where this line cuts H.L. is the D.V.P. (2) By bisecting the 90 degree angle formed at S.P. by the two vanishing parallels. Where the bisector cuts H.L. is the D.V.P.

Heights in Perspective. The level ground on which an object stands is a horizontal plane. Where it cuts P.P. is the ground line, a true scale line from which heights can be measured vertically. There is properly only one G.L., but custom calls all horizontal lines formed by horizontal planes cutting P.P., G.L.'s, so that by extending the horizontal plane containing any point or line till it cuts P.P., the scale height is determined in the picture. In Figs. 1 and 2 the G.L. is distance "a" below H.L., which is the height of the figure below the eye. What we term path lines are lines which recede in perspective to a V.P. To find the height of a path line, it is extended to cut P.P. at its true scale vertical distance from H.L.

If a vertical plane or wall of heights is drawn through any path line, it will cut P.P. in a vertical line called a line of heights, and any height in that plane can be scaled on this line, and carried back to V. P. by horizontal

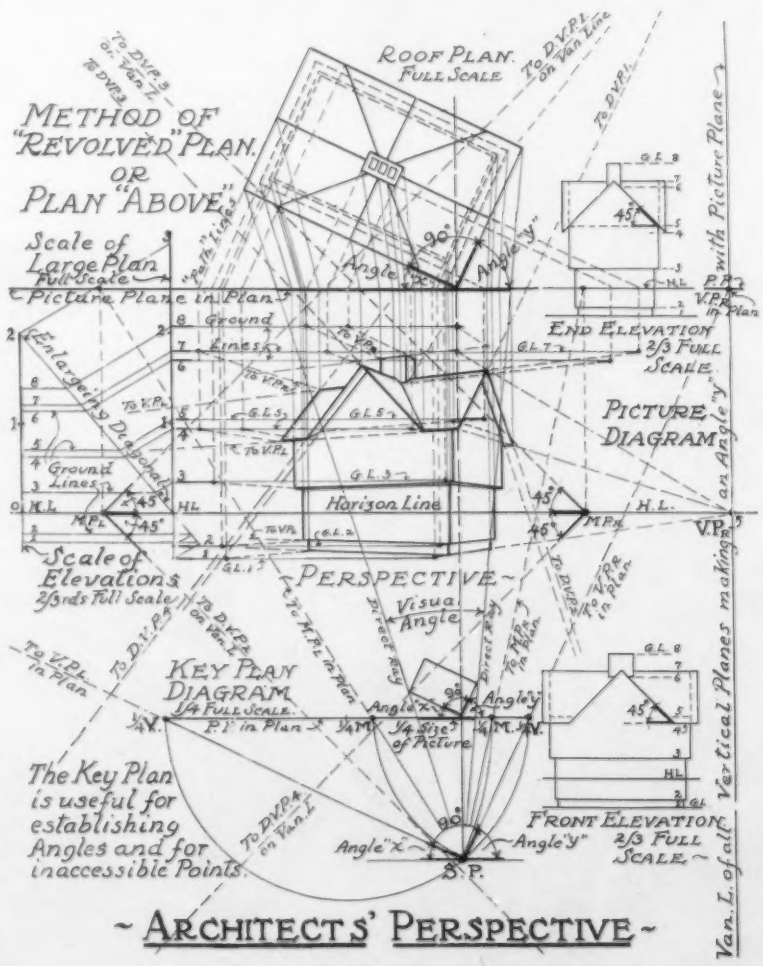


Figure 7

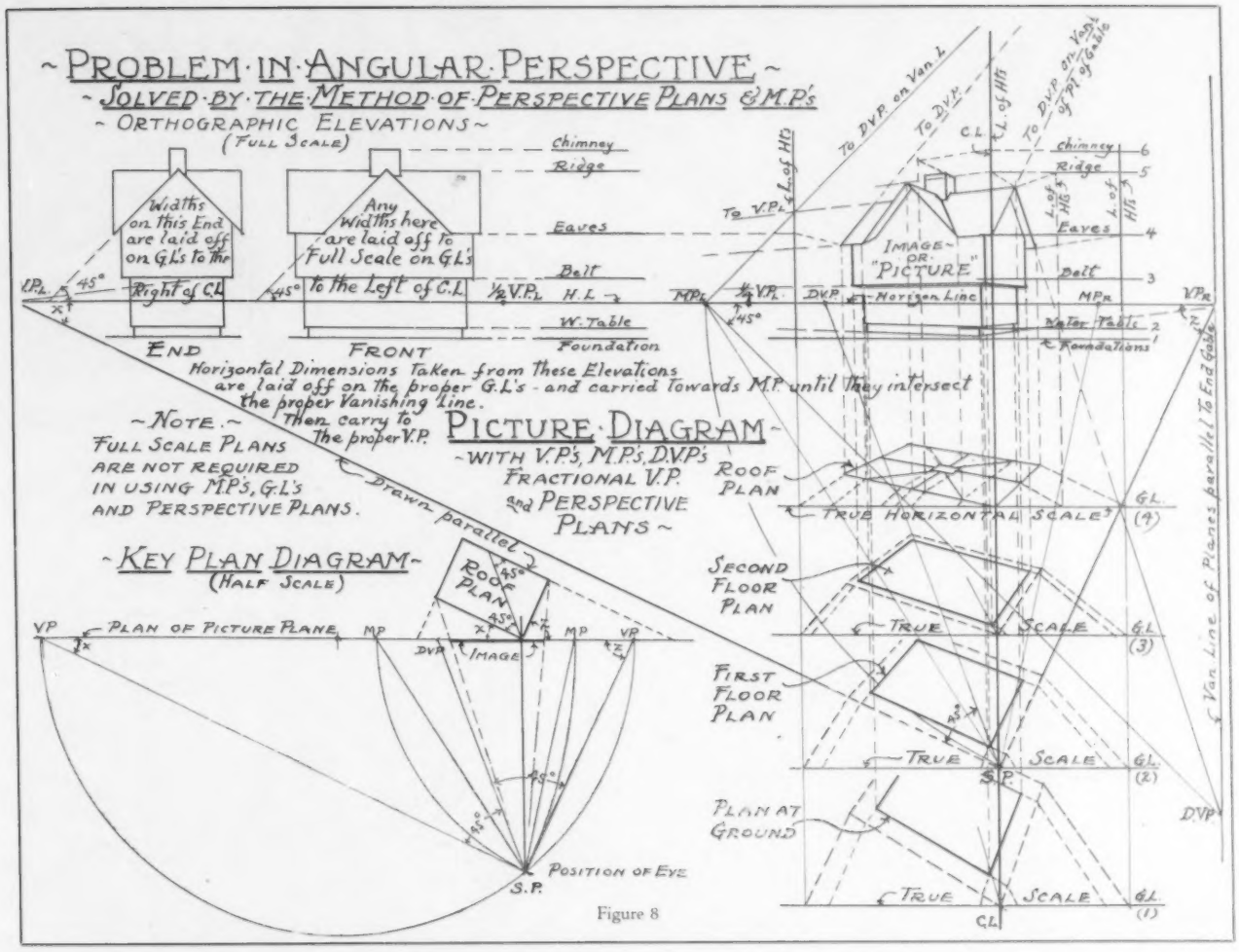


Figure 8

parallels to find the perspective heights of points in that plane. (See Fig. 3.) It is convenient to use a L. of Hts. in the left margin of the picture, out of the way of other lines, to avoid confusion. Any "casual" V.P. may be taken on H.L. for carrying back into perspective horizontal parallels of height, laid off on this scale line of heights; and G.L.'s carried horizontally until they cut this wall of heights can be measured at that perspective distance on a vertical scale line of heights there, or can be taken forward along the path wall to the larger scale L. of Hts. in the P.P.

This matter of finding heights is often puzzling to draftsmen, but is so simple if once understood that space will be given to a full explanation of finding lines of heights for different positions of the P.P. in relation to the object in plan.

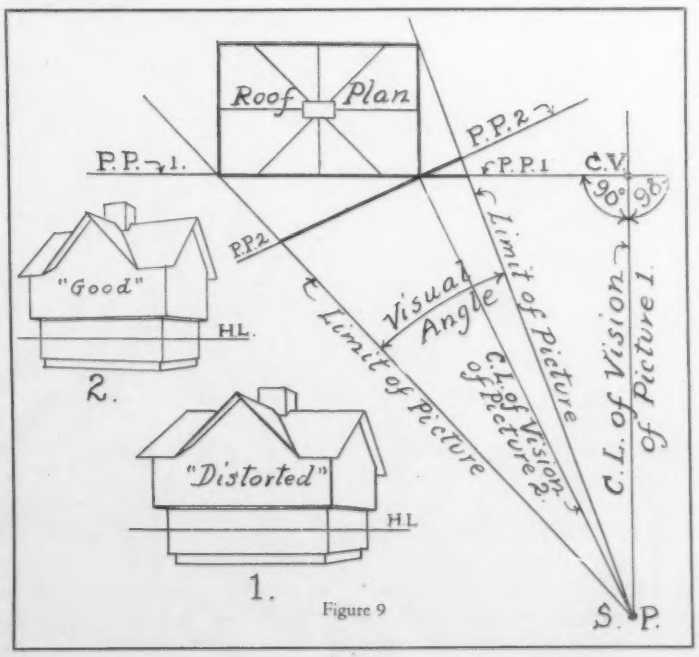


Figure 9

In Figs. 4, 5, and 6 a double fold screen is shown in angular perspective. The P.P. is taken in Fig. 4 on the corner of the screen; in Fig. 5 P.P. is taken forward of the screen; in Fig. 6 P.P. is taken back of it. If P.P. touches a receding line of the plan, a line of heights can be erected at this point. In Fig. 4 this corner lies in both of the receding lines representing the two planes of the screen, and it also lies in the P.P. Therefore a L. of Hts. at this point serves for finding the heights of horizontal lines in both planes, which are thus walls of heights.

If the P.P. cut the screen back of the corner, two lines of height could

be erected, one at each point where it cuts the two receding lines. In Fig. 5 P.P. is wholly in front of the screen, so that it does not touch or cut either receding line unless they are extended purposely. They are so extended in order to establish points on P.P. for erecting L.'s of Hts. Still being path lines, receding to V.P.'s, heights of points in either plane can be scaled on each line of heights and carried back to their perspective positions as determined by direct projection in plan, or by using measure points and G.L.'s for measuring their horizontal distances from P.P. along the receding path lines which contain the points. Fig. 6 differs from Fig. 5 only in that the receding path lines are extended backward to cut P.P. instead of forward, in order to establish L.'s of Hts. From these, at true scale, the heights are carried forward from the proper V.P. along the proper path line to the proper perspective positions of the points, by the same methods as in the other cases.

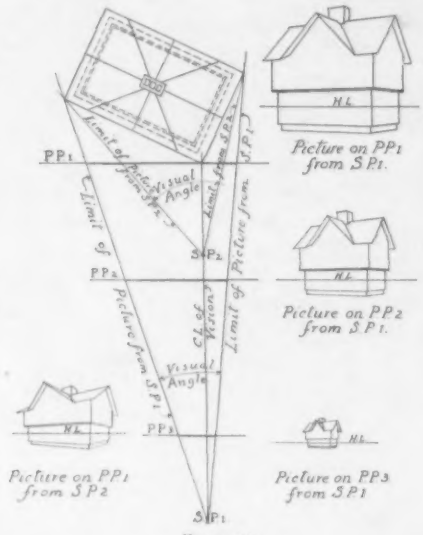


Figure 10

WORKING METHODS. There are several methods of making a perspective drawing. The two most commonly used are the "revolved plan" and that of the "measure points" for finding the perspective location of points; both methods employ the G.L.'s and the lines of height.

Parallel perspective differs from angular perspective only in the fact that in the first the main lines are parallel with P.P., and in the latter the main lines make angles with it. The principles of both are identical.

Fig. 7 shows a building solved by direct projection in plan, and Fig. 8 shows the same building solved with M.P.'s, with auxiliary perspective plans for each separate story.

THE PERSPECTIVE PLAN. The use of a perspective plan when the solution is by M.P.'s is especially valuable for finding the position of points in planes near the horizon. This is because the lines (measure lines and receding lines in perspective) which determine the positions of the points become so flat that their intersection is apt to be indefinite. By taking a G.L. far from the H.L. their intersecting angle becomes acute, thus making the point of intersection definite. Another purpose of taking a G.L. far above or below the H.L. is to keep the auxiliary plan away from the main picture, thus avoiding the confusion of crowded lines.

The height of the plane on which the perspective plan is made for the sole purpose of locating positions of points does not affect their actual height positions, which are found on lines of height erected on path lines cutting P.P. as described above.

The use of M.P.'s and the perspective plan obviates the necessity of a plan diagram, and enables the whole process to be kept within a small compass in the picture diagram. It also serves as a record of the work at all stages, so that a drawing partially completed can be left and finished later by another draftsman, while the use of the revolved plan gives no such record of positions of points which have been ticked off from the plan. This method also enables corrections and changes to be made, and parts of the design to be studied in perspective and put back into plan and elevation without confusing the drawing.

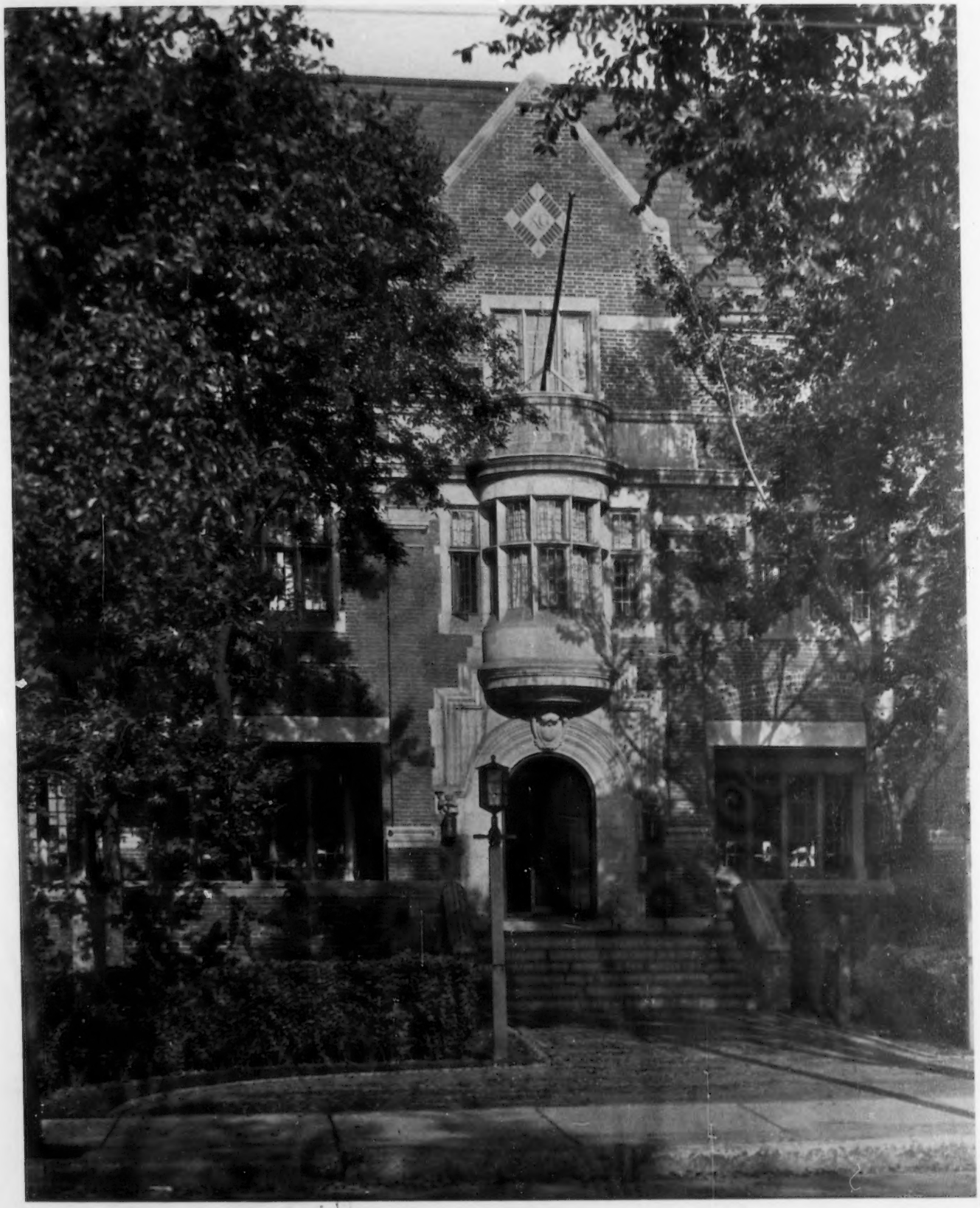
DISTORTIONS. Probably the most common fault made in drawing perspectives is in choosing an unfortunate position for S.P. A good rule is to place it in front of P.P. so that the width of the picture limits is included within the normal visual angle.

If the S.P. is too close to the object, the extreme high and low vanishing lines will make disagreeably sharp angles with H.L. If it is taken too far away, the vanishing lines will become more and more flat, or parallel with the horizon line in proportion to its distance from the object. This effect is one that is seen in a photograph taken with a telescopic lens. It is restful, but is not often natural, and in the making of a perspective drawing a distant S.P. means that at least one of the V.P.'s will be so far away on the H.L. as to become impracticable. Certain devices are used when these inaccessible V.P.'s occur, which will be described in the second paper of the series.

In selecting a viewpoint so as to bring into view the best features of the subject, the easiest method is to draw the P.P. in plan, and to place the plan of the object with a corner on P.P. At a point approximately opposite the center of interest, locate S.P. at such a distance in front of P.P. that the visual angle determining the limits of the picture, formed by enclosing lines from the outer points of the plan to the S.P., will make an angle of less than 60 and preferably little more than 30 degrees.

It is better to revolve the plan so that one side makes a greater angle with P.P. than the adjacent one, both because one side of the object usually has more of interest to be shown, and because vanishing lines to two equidistant V.P.'s are stiff and monotonous. In other words, it is better practice to place the plan so as to make unequal angles with P.P. rather than to place it so as to make two angles of 45 degrees and move the center of interest to one side of the center line of vision in order to make the V.P.'s unsymmetrical. The reason is that if the center line of vision is made to fall outside of the visual angle, the resulting perspective is distorted and unnatural. Fig. 9 shows this, in the case of parallel perspective in "1," while "2" shows the same building from the same S.P. but with the plan turned so as to make the C.L. of vision fall within the angle of vision.

Fig. 10 shows the distorted effect of the S.P. taken too close, at S.P.2, and the effects of taking the P.P. at different distances but parallel to one another. The result is simply a change in size of the resulting picture, the diminution being directly proportional to the nearness of P.P. to the S.P.

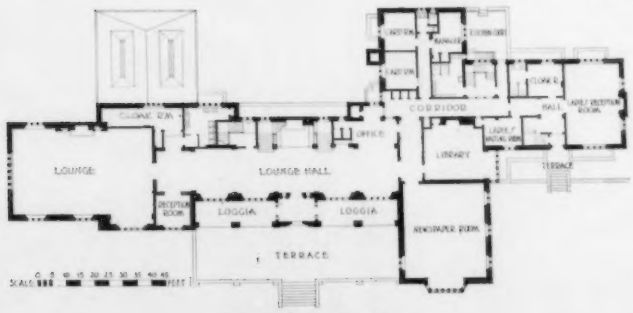


DETAIL OF ENTRANCE FRONT

KITCHI GAMMI CLUB, DULUTH, MINN.

CRAM, GOODHUE & FERGUSON, ARCHITECTS (NEW YORK OFFICE)

DINING HALL



FIRST FLOOR PLAN

SECOND FLOOR PLAN

KITCHI GAMMI CLUB, DULUTH, MINN.

CRAM, GOODHUE & FERGUSON, ARCHITECTS (NEW YORK OFFICE)

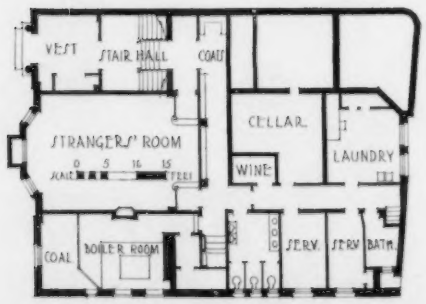
LOUNGE HALL

PRIVATE DINING ROOM

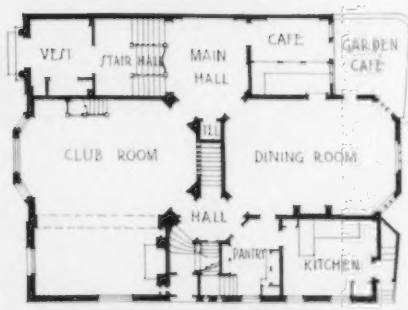
KITCHI GAMMI CLUB, DULUTH, MINN.

CRAM, GOODHUE & FERGUSON, ARCHITECTS (NEW YORK OFFICE)

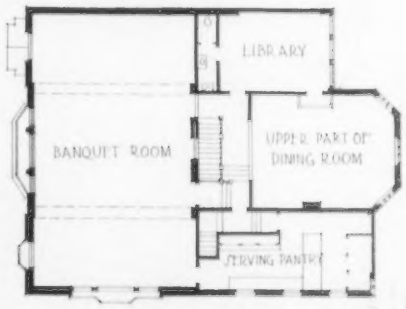
VIEW OF STREET FACADE



GROUND FLOOR PLAN



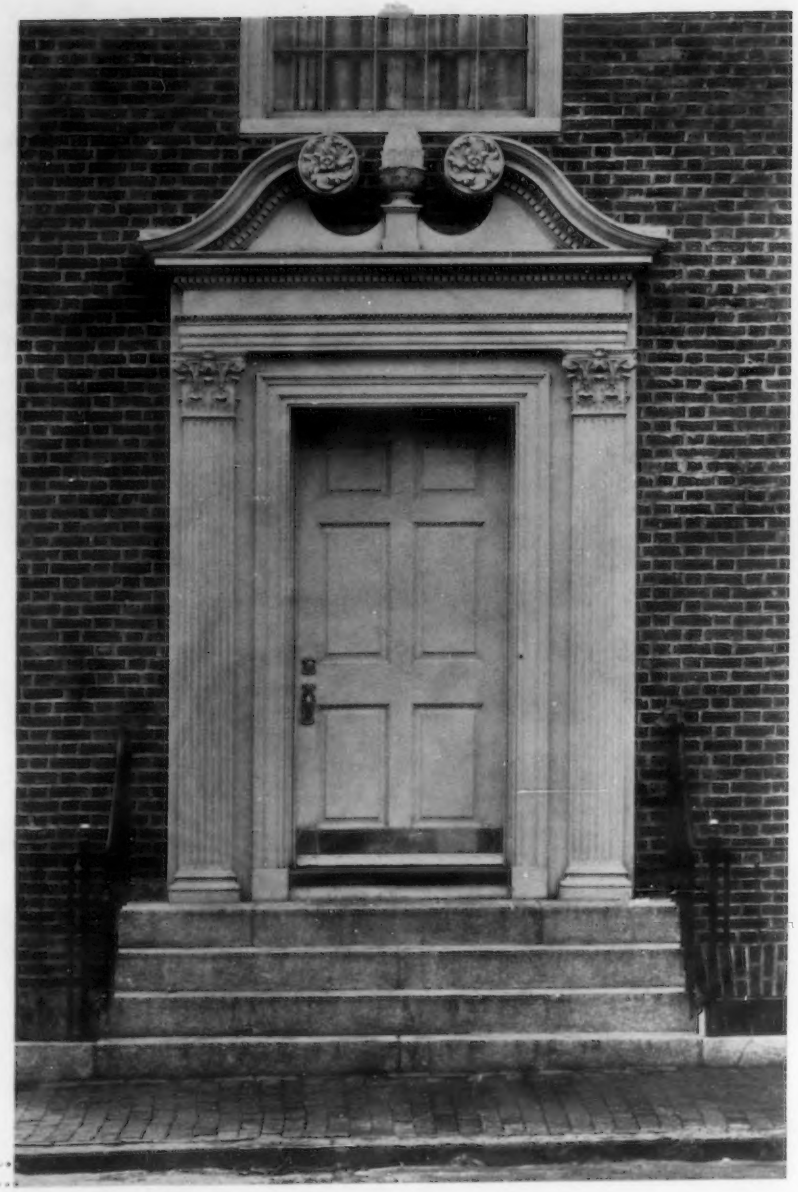
FIRST FLOOR PLAN



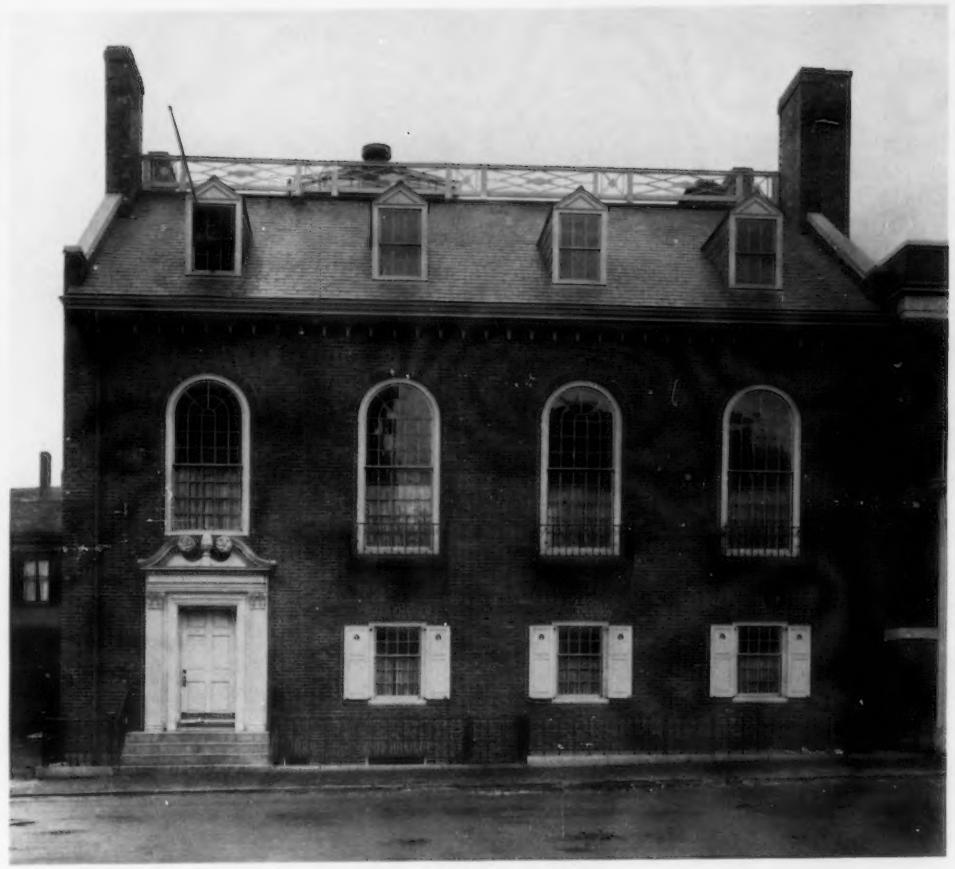
SECOND FLOOR PLAN

IROQUOIS CLUB, CAMBRIDGE, MASS.

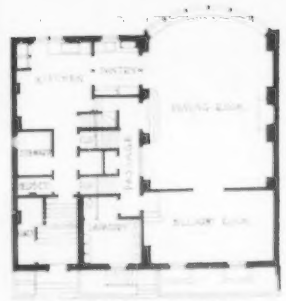
WARREN & WETMORE, ARCHITECTS



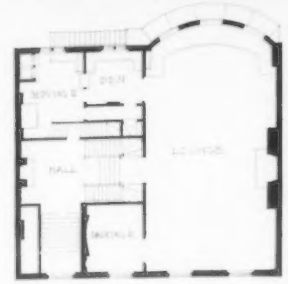
DETAIL OF DOORWAY



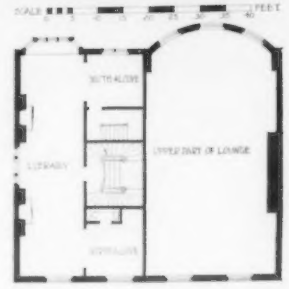
VIEW OF STREET FACADE



GROUND FLOOR PLAN



FIRST FLOOR PLAN



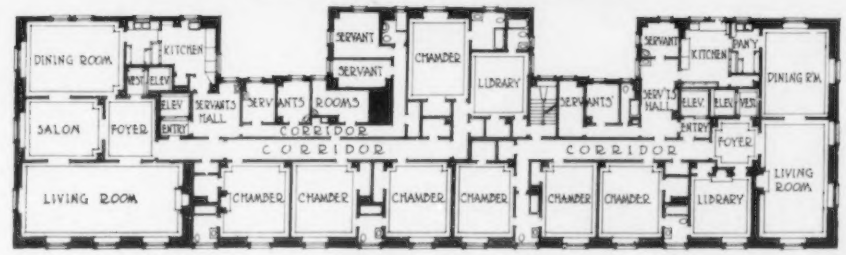
SECOND FLOOR PLAN

S. K. CLUB, CAMBRIDGE, MASS.

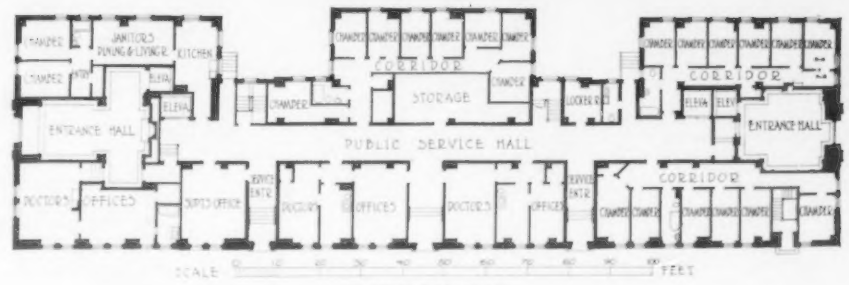
COOLIDGE & SHATTUCK, ARCHITECTS

GENERAL VIEW OF EXTERIOR

DETAIL OF UPPER STORIES AND CORNICE



TYPICAL FLOOR PLAN



FIRST FLOOR PLAN

APARTMENT HOUSE, 420 PARK AVENUE, NEW YORK, N. Y.

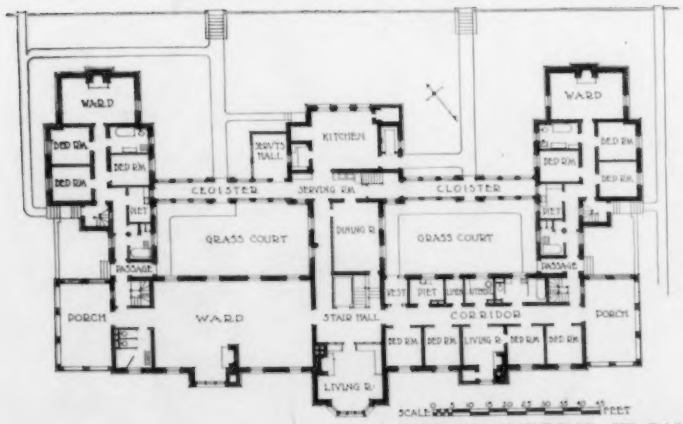
WARREN & WETMORE, ARCHITECTS

VIEW IN ENTRANCE HALL

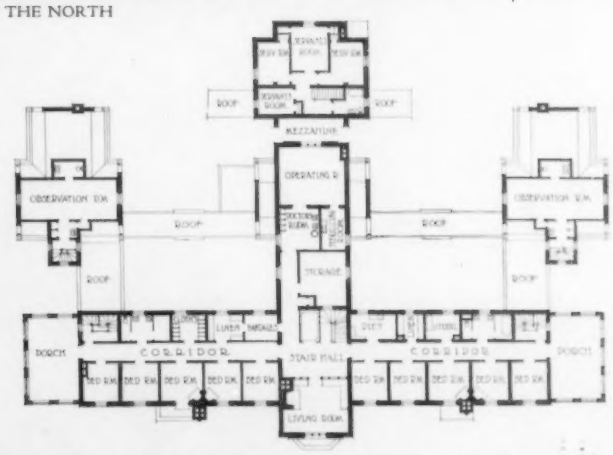
DETAIL OF ENTRANCE

APARTMENT HOUSE, 420 PARK AVENUE, NEW YORK, N. Y.
WARREN & WETMORE, ARCHITECTS

GENERAL VIEW FROM THE NORTH



FIRST FLOOR PLAN



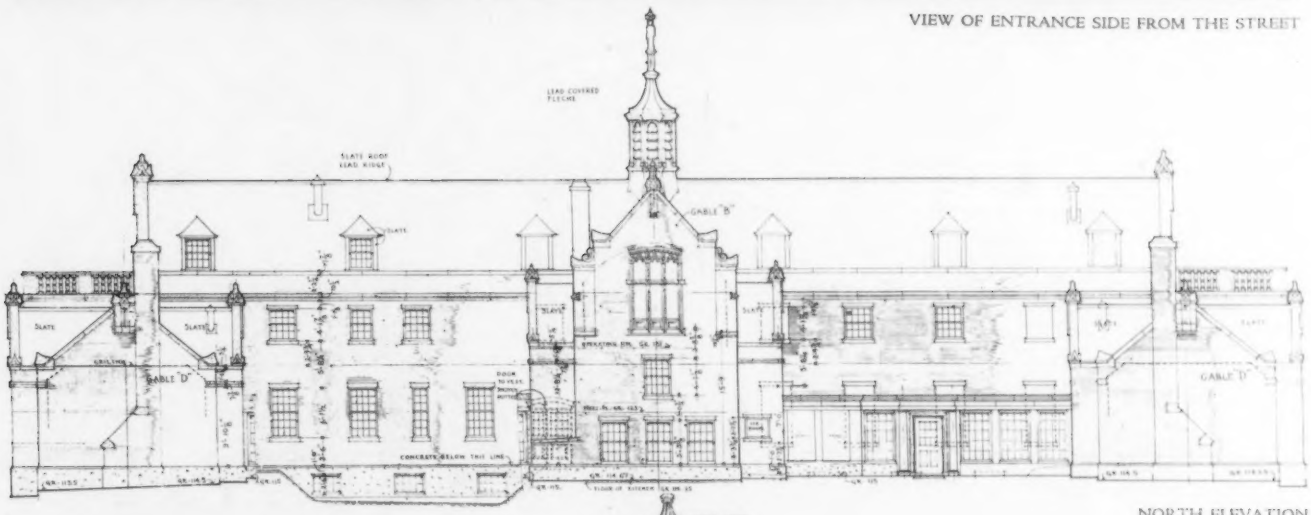
SECOND FLOOR PLAN

INFIRMARY BUILDING, ST. PAUL'S SCHOOL, CONCORD, N. H.

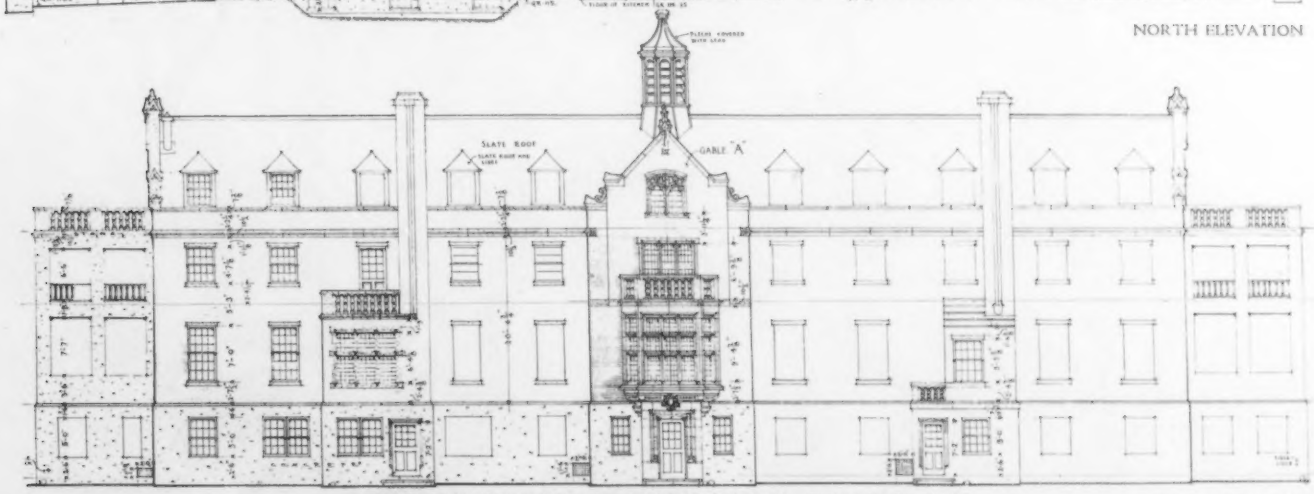
R. CLIPSTON STURGIS, ARCHITECT

CHARLES L. BORIE, JR., BENJAMIN W. MORRIS AND R. CLIPSTON STURGIS,
BOARD OF ARCHITECTS FOR THE TRUSTEES

VIEW OF ENTRANCE SIDE FROM THE STREET



NORTH ELEVATION



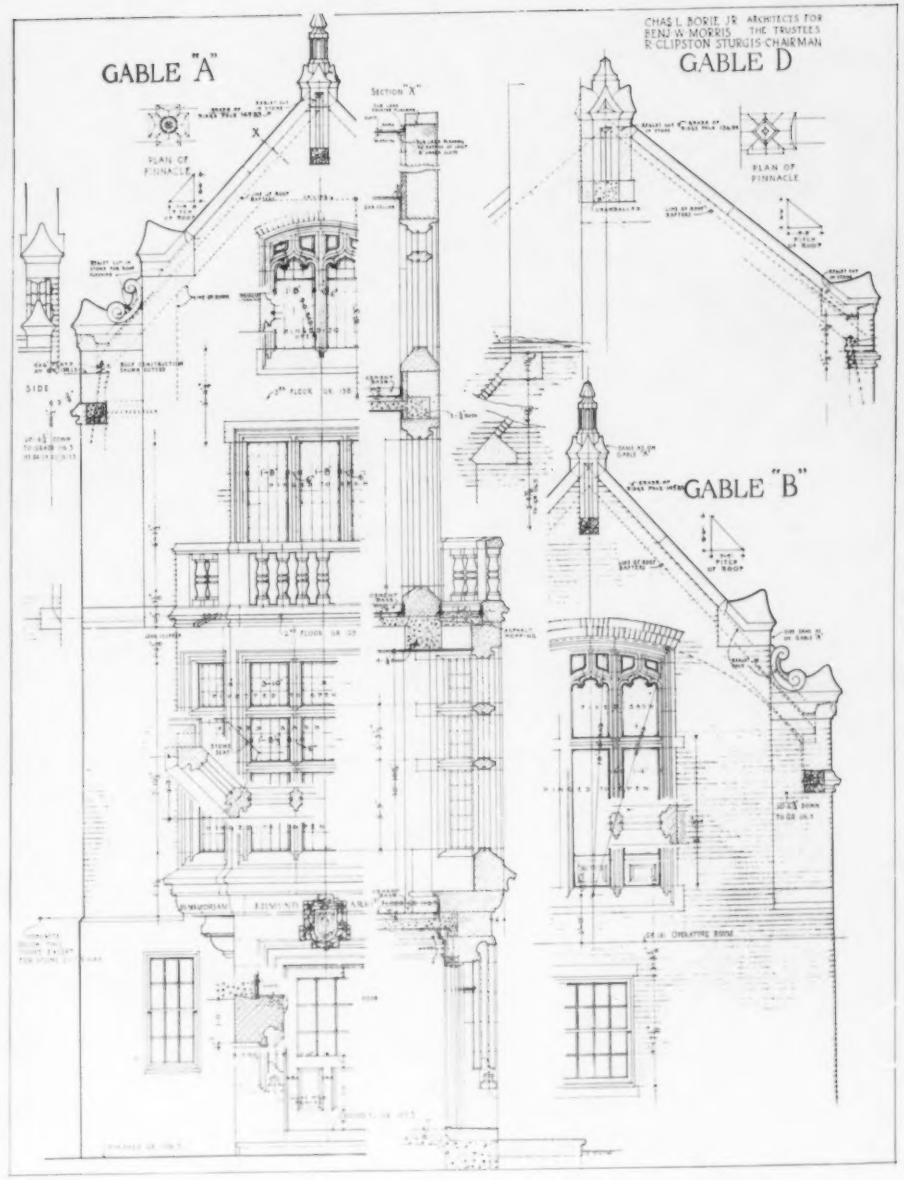
SOUTH ELEVATION

INFIRMARY BUILDING, ST. PAUL'S SCHOOL, CONCORD, N. H.

R. CLIPSTON STURGIS, ARCHITECT

CHARLES L. BORIE, JR., BENJAMIN W. MORRIS AND R. CLIPSTON STURGIS,
BOARD OF ARCHITECTS FOR THE TRUSTEES

DETAIL OF SOUTH ELEVATION



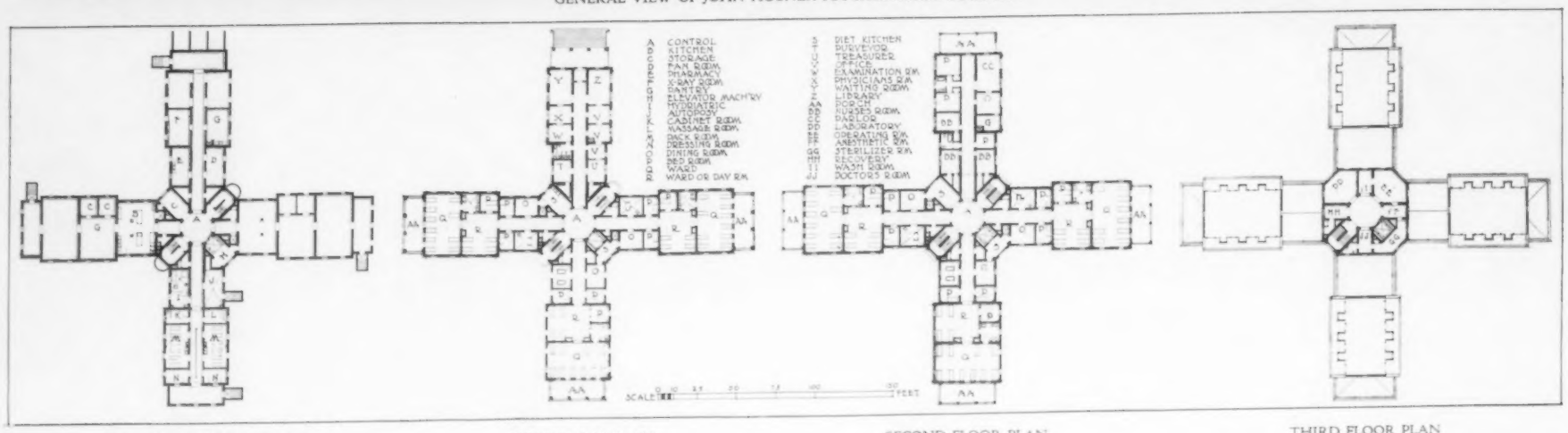
DETAILS OF GABLES ON SOUTH ELEVATION

INFIRMARY BUILDING, ST. PAUL'S SCHOOL, CONCORD, N. H.

R. CLIPSTON STURGIS, ARCHITECT

CHARLES L. BORIE, JR., BENJAMIN W. MORRIS AND R. CLIPSTON STURGIS,
BOARD OF ARCHITECTS FOR THE TRUSTEES

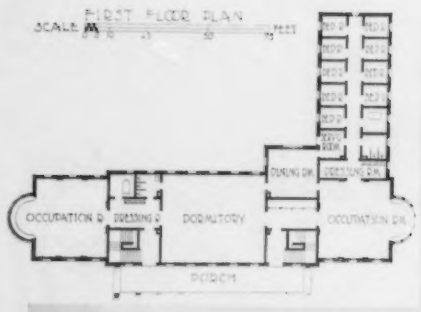
GENERAL VIEW OF JOHN HUBNER PSYCHOPATHIC BUILDING

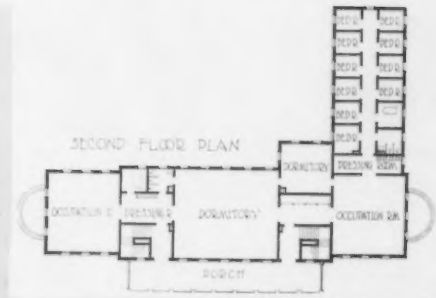


BASEMENT FLOOR PLAN — FIRST FLOOR PLAN — SECOND FLOOR PLAN — THIRD FLOOR PLAN

SPRINGFIELD STATE HOSPITAL, NEAR SYKESVILLE, MD.

PARKER, THOMAS & RICE, ARCHITECTS





GENERAL VIEW OF CROTHERS COTTAGE OF WOMEN'S GROUP

SPRINGFIELD STATE HOSPITAL, NEAR SYKESVILLE, MD.

PARKER, THOMAS & RICE, ARCHITECTS

SOUTH SIDE OF COTTAGE "G"

ENTRANCE SIDE OF COTTAGE "G"

SPRINGFIELD STATE HOSPITAL, NEAR SYKESVILLE, MD.

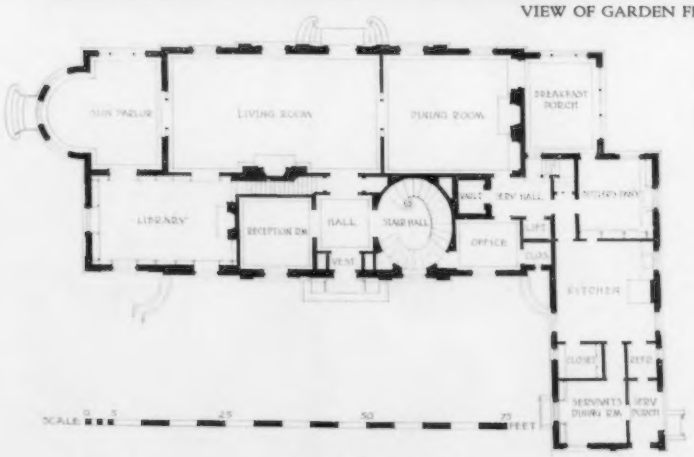
PARKER, THOMAS & RICE, ARCHITECTS

GENERAL VIEW FROM DRIVEWAY

HOUSE OF FRANK R. WELLS, ESQ., BURLINGTON, VT.

MANN & MacNEILLE, ARCHITECTS

VIEW OF GARDEN FRONT AND SIDE



FIRST FLOOR PLAN

SECOND FLOOR PLAN

HOUSE OF FRANK R. WELLS, ESQ., BURLINGTON, VT.

MANN & MacNEILLE, ARCHITECTS

DINING ROOM

DETAIL OF STAIRCASE

SUN PARLOR

HOUSE OF FRANK R. WELLS, ESQ., BURLINGTON, VT.

MANN & MacNEILLE, ARCHITECTS

THE FORUM COLLECTION OF EARLY AMERICAN ARCHITECTURAL DETAILS

PLATE THIRTY-EIGHT

THIS very pretentious doorway is part of an elaborate motif which is carried up the front of the house. Above it a Palladian window repeats the general feeling of the entrance itself. An unusual feature to be found in work of this date is the convex frieze, which, in Connecticut, is found almost invariably in the earliest work only. The builders evidently clung closely to their classic model, and only departed from it in the introduction of the fret in the bed mould of the cornice. The translation of proportions from stone to wood seems to have been very skilfully effected.

DOORWAY OF THE PRUDENCE CRANDALL HOUSE, CANTERBURY, CONN.

Built about 1815

MEASURED DRAWING ON FOLLOWING PAGE

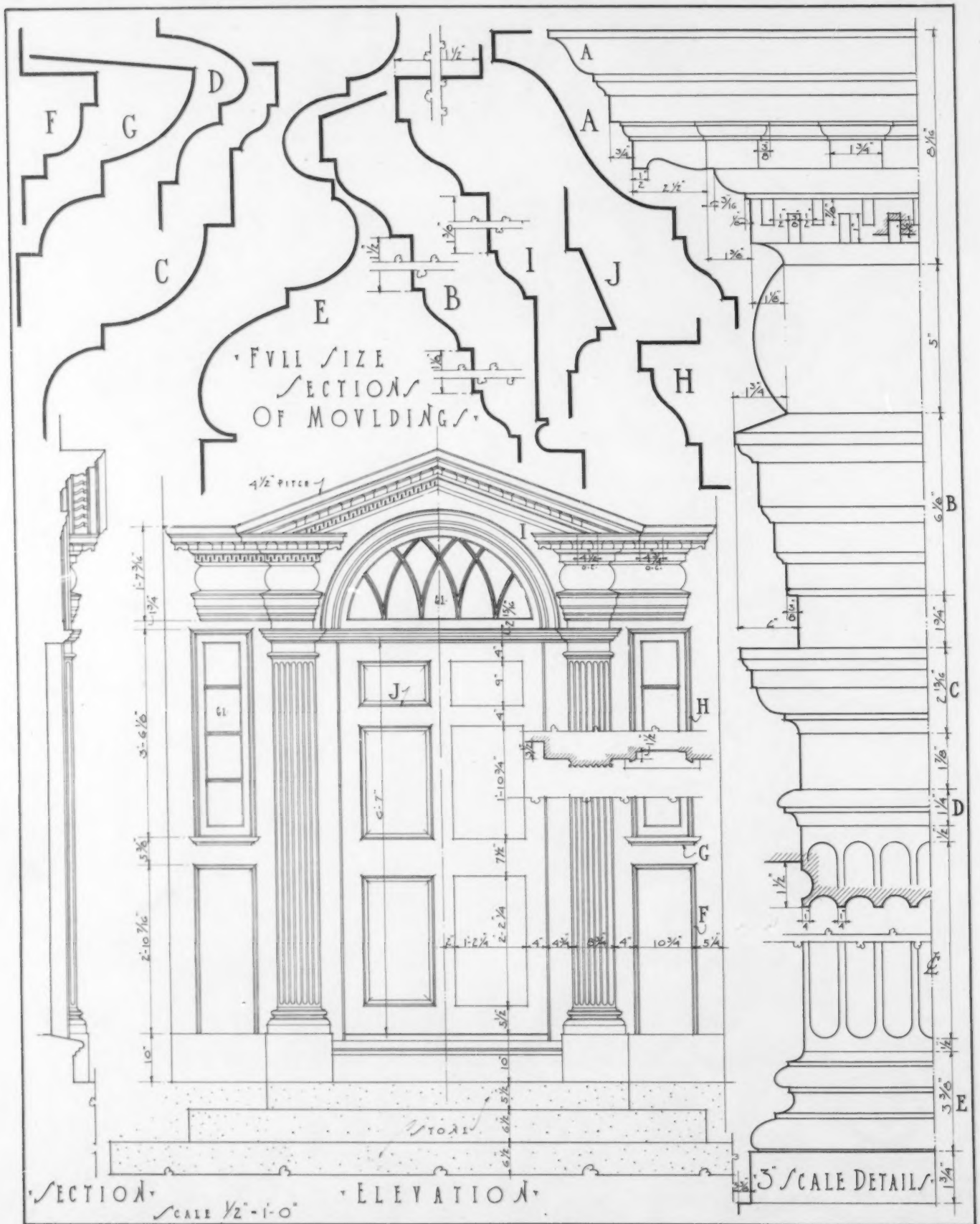


PLATE 38 MARCH 1917	PRUDENCE CRANDALL HOUSE CANTERBURY-CONN. BUILT CIR. 1815	MEASURED AND DRAWN BY J. FREDERICK KELLY

Pattern from Magic Squares*

By CLAUDE BRAGDON

MAGIC squares are numerical acrostics associated in the popular mind with ideas of necromancy, melancholia, and madness. Their only known use hitherto has been to yield sterile amusement to the arid arithmetist. In this essay the author will endeavor to show that magic squares are a source of formal beauty. There is nothing strained or illogical in this, for beauty is ever the fine flower of order and necessity, and in magic squares order and necessity preëminently rule. They owe their amazing properties less to man's ingenuity than to the harmony inherent in number itself, a harmony which the mathematician does nothing to create, but simply brings to light.

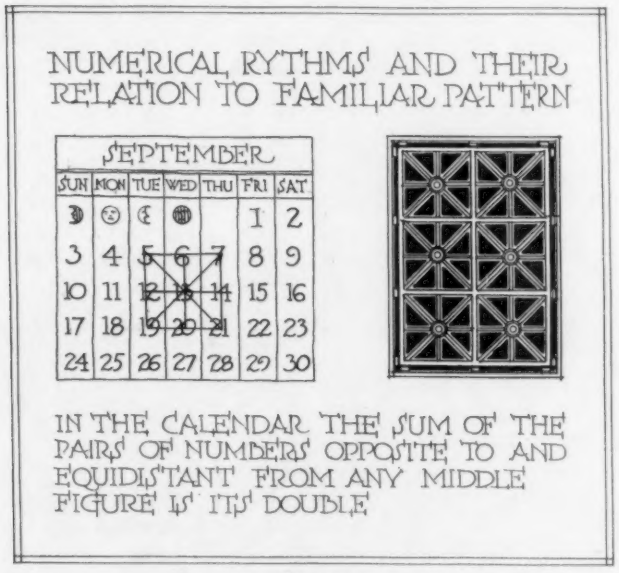


Figure 1

The Acrostic of the Days

If you doubt this, refer for reassurance to your calendar — your calendar whose commonplace face, having yielded you information as to pay day, due day, and holiday, you obliterate at the end of each month without a qualm, oblivious of the fact that were your interests less sordid and personal, it would speak to you of that order which pervades the universe, would make you realize something of the music of the spheres. For on that familiar checkerboard of the days are numerical arrangements which are mysterious, "magical"; each separate number is as a spider at the center of an amazing mathematical web.

Test it. Choose any number completely surrounded by other numbers, and you will find that the sum of the pairs opposite to and equidistant from the chosen number is its double — that is, the pairs add to the same sum, and the central number divides this sum by two. Indicate this fact graphically on the calendar face by means of vertical, horizontal, and diagonal lines, all intersecting in the chosen number, and you have the rudiments of pattern. Indeed, you have automatically created that form of classic grille dear to the heart of every tyro draftsman (Figure 1).

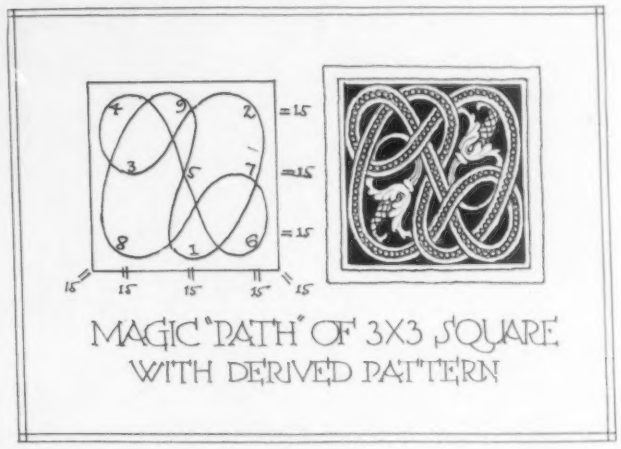


Figure 2

The Magic Path

This particular numerical acrostic, though possessing magical properties, does not of course constitute a magic square. A magic square consists of a series of numbers arranged in quadratic form so that the sum of each vertical, horizontal, and corner diagonal column is the same amount. There is another condition to be fulfilled in order that the square may be considered perfect. In odd squares the sum of any two numbers that are geometrically equidistant from the center of the square shall equal the sum of the first and last numbers of the series.

It is clear that the arrangement of the numbers in a magic square is *necessitous*. Therefore the magic line or

* For much of the material contained in this essay the author is indebted to W. S. Andrews' "Magic Squares and Cubes," and particularly to that chapter entitled "Reflections on Magic Squares and Cubes," by Dr. Paul Carus.

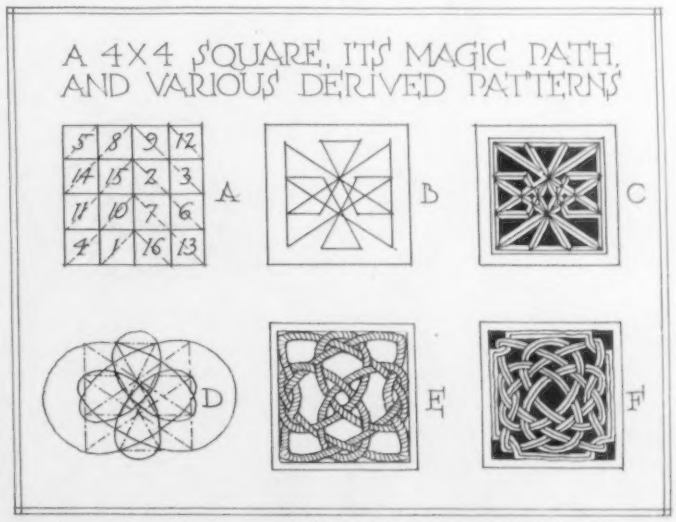


Figure 3

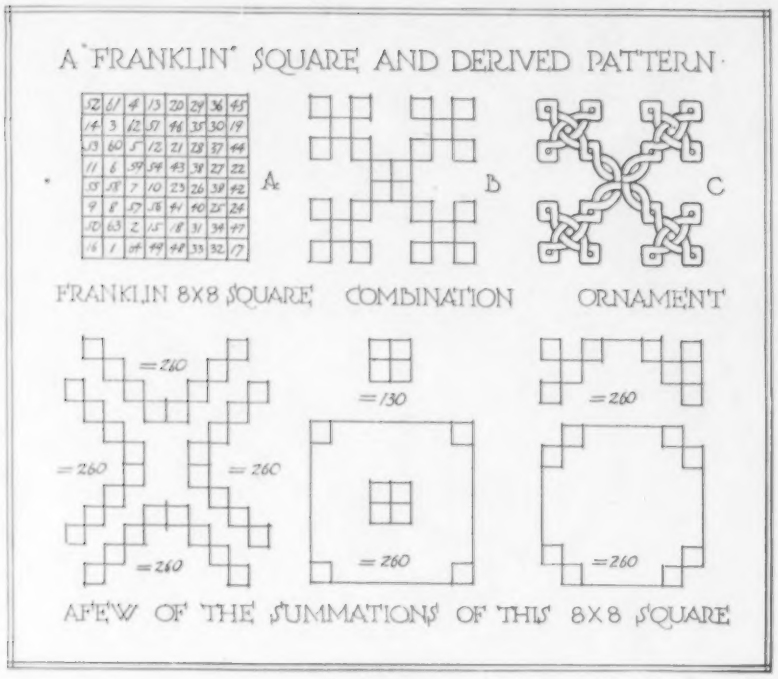


Figure 4

"path" traced by following the numbers in their natural order from cell to cell is a necessitous line; and because necessity is the mother of beauty, it need not surprise us that this line is often found to be beautiful — a motif, *per se*, for ornament.

This matter of the "magic path" will be dealt with only cursorily here, because of its fuller treatment in the chapter on Magic Squares in "Projective Ornament"; but in order that the reader may understand just what is meant by it, two simple but highly interesting examples are given in Figures 2 and 3. The left-hand drawing in Figure 2 represents the smallest aggregation of numbers that is capable of magic square arrangement, and it is also the only possible arrangement of nine different numbers relatively to each other which fulfils the conditions outlined above. It will be seen that each vertical, horizontal, and corner diagonal column adds up to 15, and the sum of any two opposite numbers is 10, which is twice the center number. The endless line is the magic path of this square developed by following free-hand the numbers in their natural order; that is, from 1 to 9 and back to 1 again. The drawing at the right of the figure is this same line translated into ornament by making an interlaced ribbon of it and filling in the larger interstices with simple conventional floral forms.

In A, Figure 3, we have a 4 by 4 square which, though not perfect according to the rules of even magic squares previously given, has the compensating interest of its *bent diagonal columns*, which yield the same magic sum (34) as its vertical and horizontal columns. The magic path of this square is of great beauty and symmetry, whether developed as a straight line (B) or as a curve (D). In either case it is easily translatable into ornament, as shown by examples C, E, F (Figure 3).

The Franklin Squares

The characteristic properties of this 4 by 4 square are possessed by the 8 by 8 and 16 by 16 squares shown in Figures 4 and 5, together with many others even more curious and interesting. These squares were developed by Benjamin Franklin and described by him in a letter to his friend Peter Collinson. He thus enumerates the properties of the 8 by 8 square:

1. That every straight row (horizontal or vertical) of eight numbers added together makes 260, and half of each row, half of 260.

2. That the bent row of eight numbers ascending and descending diagonally, viz., from 16 ascending to 10 and from 23 descending to 17, and every one of its parallel bent rows of eight numbers makes 260, etc. And lastly the four corner numbers with the four middle numbers make 260.

Mr. James Parton, in his "The Life and Times of Benjamin Franklin," enumerates the following properties in addition to those mentioned by Franklin:

The bent row of 52 descending to 54, and from 43 ascending to 45, and every one of its parallel bent rows of eight numbers makes 260. Also, the bent row from 45 to 43 descending to the left, and from 23 to 17, descending to the right, and every one of its parallel bent rows of eight numbers makes 260. Also, the bent row from 52 to 54, descending to the right, and from 10 to 16, descend-

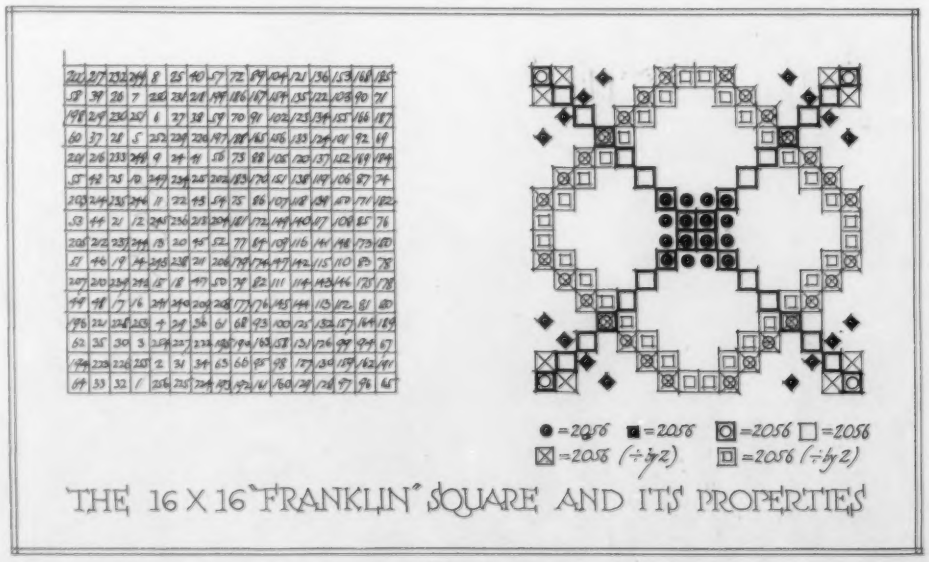


Figure 5

ing to the left, and every one of its parallel bent rows of eight numbers makes 260. Also the parallel bent rows next to the above mentioned, which are shortened to three numbers ascending and three descending, etc., as from 53 to 4 ascending and from 29 to 44 descending, make, with the two corner numbers, 260. Also the two numbers, 14, 61, ascending, and 39, 19, descending, with the lower four numbers situated like them, viz., 50, 1, descending and 32, 47, ascending, make 260.

Certain of these remarkable characteristics are illustrated graphically in Figure 4, in which the relative position of the cells containing the numbers which make up the magic sum, 260, is indicated by the relation of the small hollow squares. In B these are shown superimposed, yielding a symmetrical arrangement of cells readily translatable into ornament (for example, as shown in C, Figure 4).

Franklin's 16 by 16 square (Figure 5) is constructed on the same principle as the 8 by 8 square, and possesses the same properties (the magic sum, however, being 2056). The properties of the larger square are indicated in the right-hand diagram of Figure 5. The combinations of cells which yield the magic sum may be identified by means of the different symbols employed, and though these symbols were chosen almost at random, without reference to decorative values, it is nevertheless true that their assemblage yields an odd and pleasing pattern.

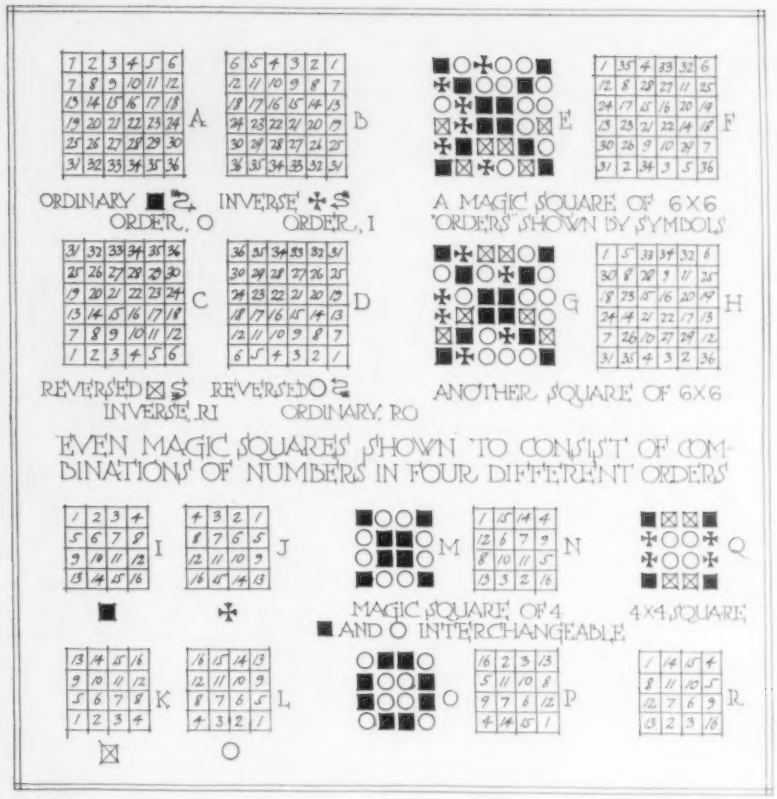


Figure 6

The Four Orders (Numerical, not Architectural)

For the methods of magic square construction the reader is referred to mathematical sources: any discussion of them is outside the province of this essay, which aims only to show the novel uses to which magic numerical arrangements may be put. But in order to follow the next development of this theme, a peculiarity of even number magic squares of the accepted type should be understood. This peculiarity consists in the fact that they are made up of selections of numbers from four different orders of counting:

1. The *ordinary* way of writing from the left to the right proceeding in parallel lines downward, A (Figure 6).
2. Its *reverse*, proceeding from the lower right-hand corner toward the left, and line by line upward, thus beginning the series where the ordinary arrangement ends, and ending where it started, D.
3. The *inverse* direction to the ordinary way, beginning in the upper right-hand corner proceeding to the left, and continuing in the same way line by line downward, B, and
4. The *reverse-inverse*, starting in the lower left corner, proceeding to the right, and continuing line by line upward, C.

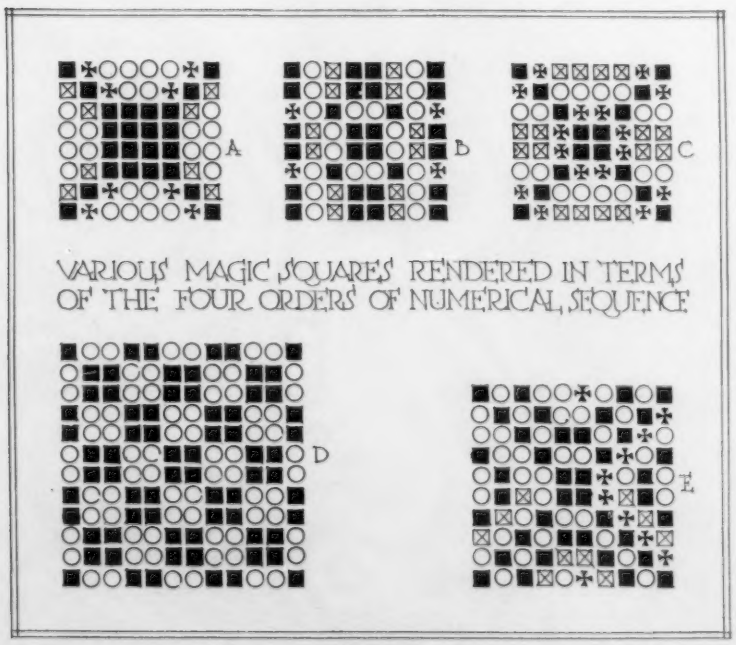


Figure 7

These four orders of counting are shown at the left of Figure 6. For brevity, let us call them respectively *o*, *ro*, *i*, and *ri*. Now all transpositions in the cells of even magic squares are brought about by the substitution of the figures of the *ro*, *i*, and *ri* order for the original figures of the ordinary, or *o* order, and the symmetry which dominates these changes becomes apparent in the diagrams of figures by the device of designating each order by a different symbol, as shown in the Figure.

The cause of this peculiarity dwells in the

fact that these squares are formed by a series of *rotations* of the numbers in their natural order. It will be noticed that *i* is the vertical mirror picture of *o*, and *ro* of *ri*, and *vice versa*. Further, if the mirror is placed upon one of the horizontal lines, *ri* is the mirror picture of *o*, as well as *ro* of *i*, and *vice versa*. (A, B, C, D, Figure 6.)

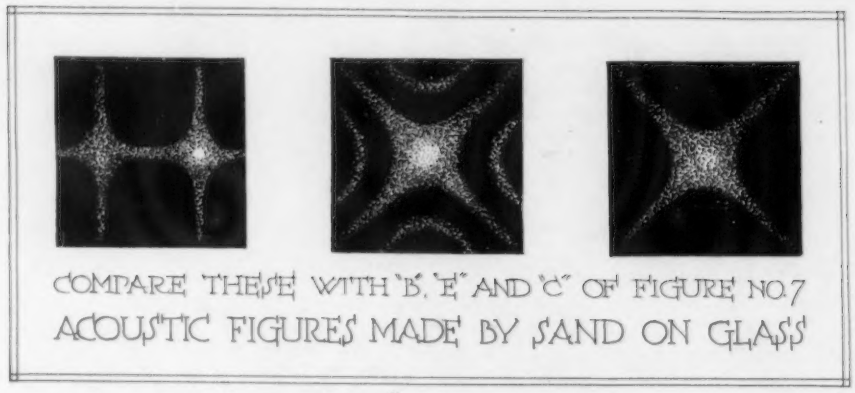


Figure 8

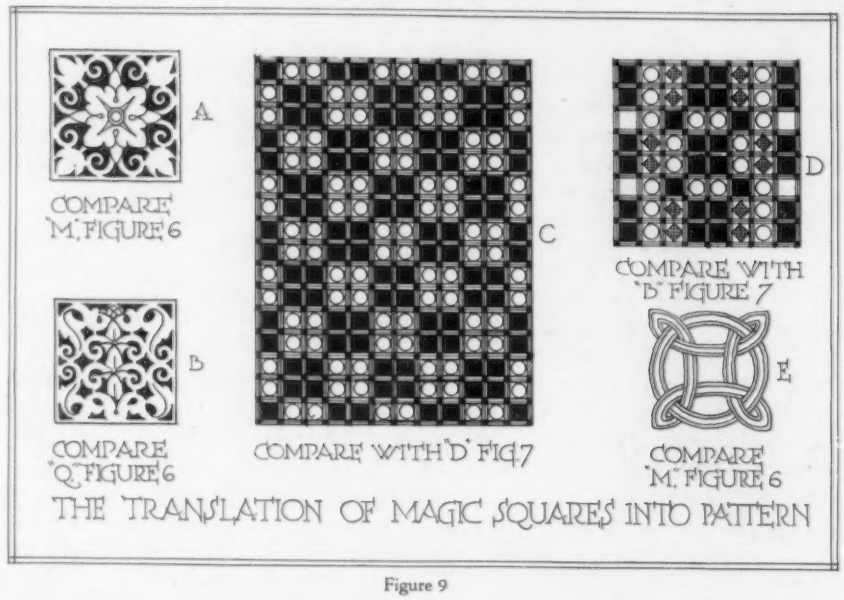


Figure 9

A Magic Square of 4 by 4

Take the smallest square of even numbers, that of 4 by 4 (N, Figure 6). If we write the figures in their natural order, I, those standing on the diagonal lines can remain in their places, for each diagonal yields the magic sum of 34, while the rest must be reversed so as to replace every figure by its complementary to 17 (*i.e.*, 2 by 15, 3 by 14, 5 by 12, 9 by 8), the number 17 being the sum of the highest and lowest numbers of the magic square. This is equivalent to filling up the empty cells with the corresponding numbers from the *ro* square L. This is graphically indicated in M. But here another curious fact emerges, namely, that the positions of the two orders may be reversed without vitiating the magic qualities of the square, as is shown in O and P. The sum of each vertical, each horizontal, and each diagonal column is still 34. The 4 by 4 magic square Q, R, is more intricate and artful, involving as it does all of the orders. This is perhaps the most perfect of all 4 by 4 squares, for not only do all vertical, horizontal, and diagonal columns add to 34, but each of the four corner 2 by 2 squares of which it is composed adds to 34, and the sum of any four numbers in the square which are symmetrically arranged with relation to the vertical and horizontal axes is 34. In more complex magic squares the same properties exist.

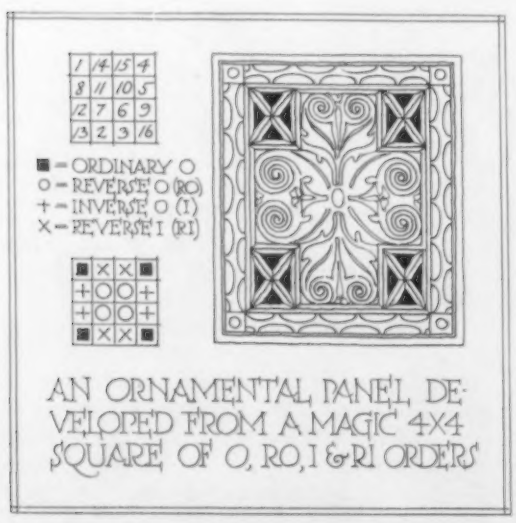


Figure 10

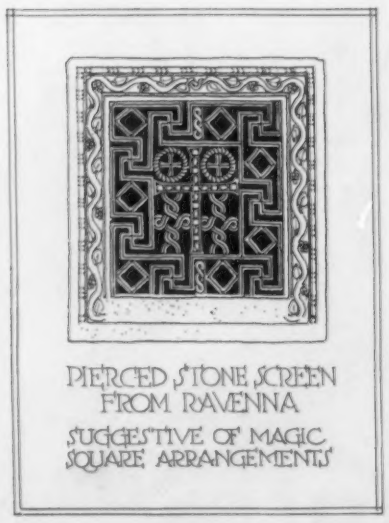


Figure 11

Analogies in Physics and Art

The diagrams in Figures 6 and 7 make palpable to the eye the inherent harmony in magic squares which so satisfies the mind, but they do more than this — they link up numerical beauty not alone with beauty of form, but with beauty of sound as well. It is a fact of physics that musical tones create air waves whose symmetry is revealed by the geometrical patterns into which sand falls when scattered over the surface of a musically vibrating plate of

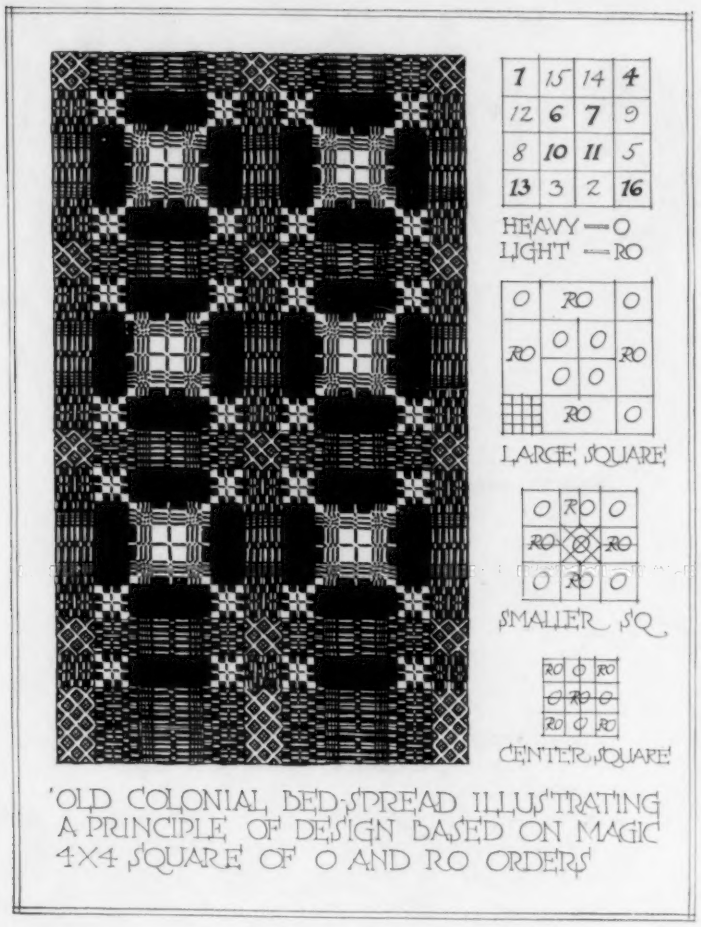


Figure 12

metal or glass. Dr. Paul Carus, in his "Reflections on Magic Squares and Cubes" (see note, page 71), shows how staggeringly close is the parallel between magic squares and the so-called Chladni acoustic figures, and explains at length why it is natural that a symmetry producing wave should produce a similar effect in the magic square to that of a note upon the sand of a Chladni glass plate. Even without his interesting analysis one has only to compare the sand figures shown in Figure 8 with certain of the magic square diagrams to become conscious of a correspondence between the two.

One has only to vary, elaborate, or enrich his symbols for the four orders of counting to produce from magic squares patterns of real decorative value as shown in Figure 9. The interlace E, for example, is a perfectly direct presentment of the relation between the *o* and *ro* orders in a 4 by 4 square (compare M, Figure 6), and it is pleasing as pattern. If instead we represent the *o* numbers by leaves and the *ro* by spirals, the panel design shown in A is almost automatically created. The 4 by 4 square R, Figure 6, involving all four orders, requires four contrasted forms for its decorative expression. This is achieved in B, Figure 9, and differently and more elaborately in Figure 10.

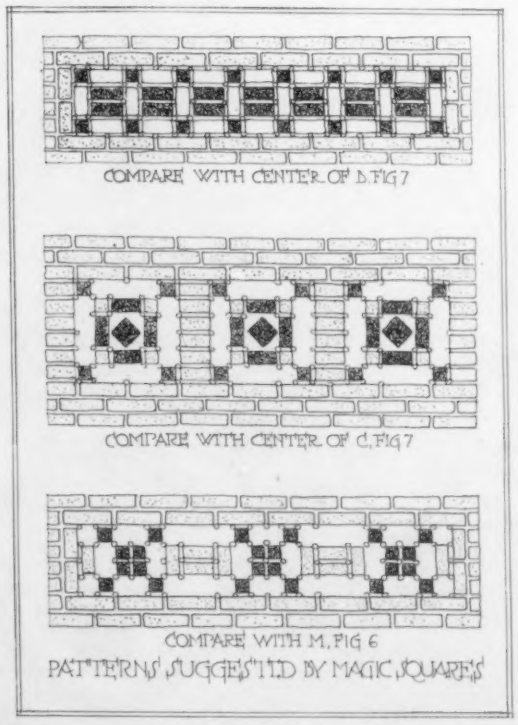


Figure 13

The beautiful pierced stone screen from the Basilica of S. Apollinare Nuovo at Ravenna, shown in Figure 11, is oddly suggestive of this order of pattern making. By substituting the figures of the *o*, *ro*, *i*, and *ri* orders for the fret, the diamond, the circle, and the twist, one would not have an actual magic square, of course, but it is easily conceivable that with the same elements no less interesting patterns might result from *bona fide* magic squares. The hint once given, the clue once found, there is no need for a too literal adherence to the numerical "frame."

Just to show how the pattern-making instinct follows, unconsciously, in the "groove" thus traced out for it by mathematics, the attention of the reader is directed to the design of the old Colonial bedspread shown in Figure 12. The principal square and those subsidiary squares which form its corners conform exactly with the archetypal pattern, *o* corresponding to white and *ro* to blue. (Compare Figure 6.)

No numerical formula can possibly take the place of the creative imagination; the only claim that will be made by the author is that these harmonies inherent in number guide the creative faculty along the very road which it would follow, keep it from straying, led by mere whim, in the pathless fields of chance.

Each artist is as much a creator as God himself; he works in the same material — matter, and he follows the same law — the Beautiful Necessity, the Inevitable Order of the world itself. To the degree that he is able to express this Inevitable Order in the work of his hands, is that work worthy to endure. Number is the most abstract, yet the most perfect expression of the World Order. The artist's work is a work of *precipitation* — to render palpable to the senses the hidden numerical rhythms everywhere operative in the world. Just as the snow crystal shows forth the harmonies latent in a raindrop, so should a work of art show forth the richer harmonies latent in

the soul — " the self-moving number " of Pythagoras.

Pattern Brickwork from Magic Squares

Now in order to finish these intellectual acrobatics on solid earth instead of in mid-air, let us attempt to apply the discovered elements of magic square construction to some problem definitely practical; let us confine our demonstration to the subject of pattern brickwork.

To design good brick pattern which is at the same time practical and beautiful is not as easy as it appears, and any artificial aid that makes it easier is a thing not to be despised by however clever an architect. The magic square patterns scattered throughout these pages constitute such an aid. That some of them conform so closely to the familiar checker-board and diaper patterns found in brick architecture the world over, is sufficient proof that this is so.

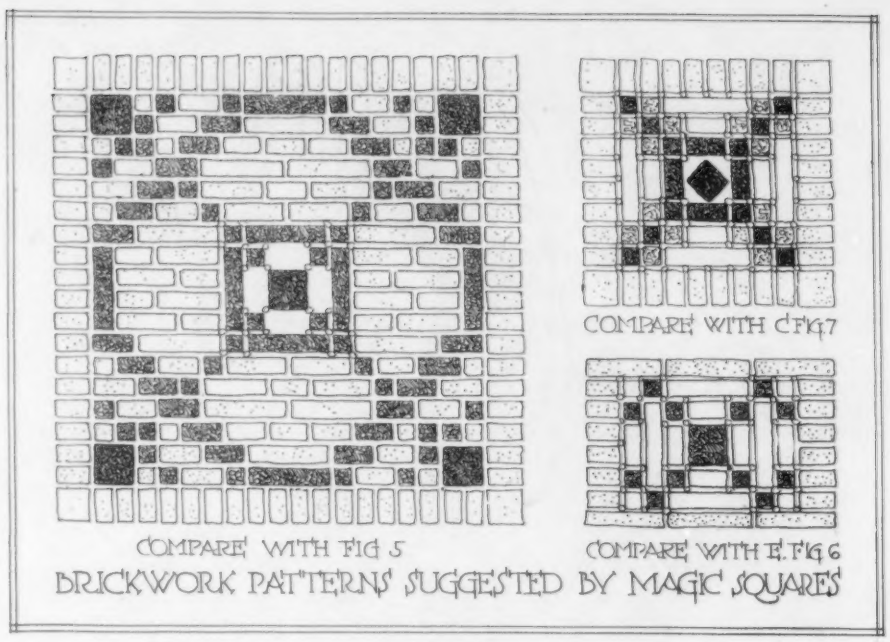


Figure 14

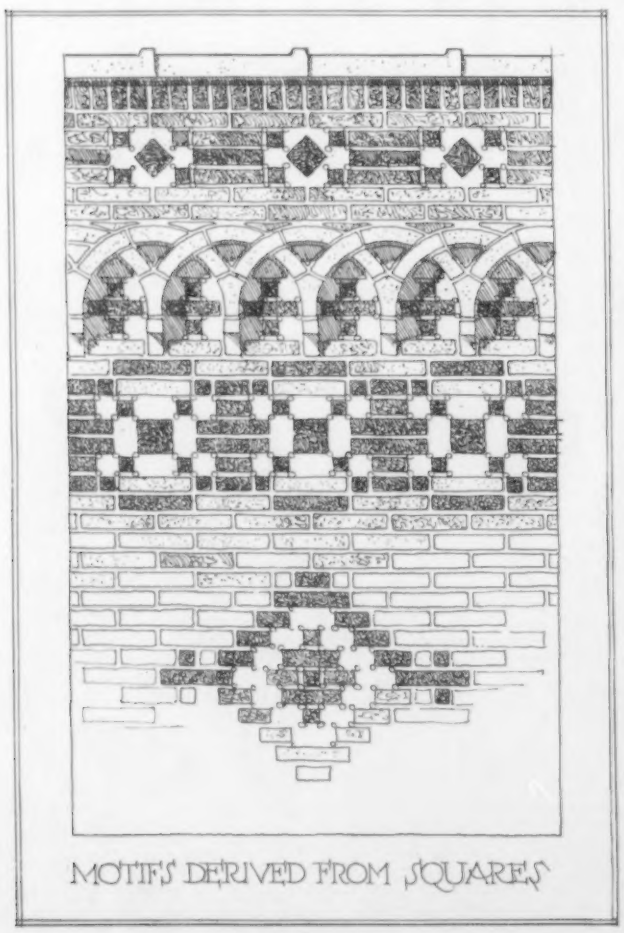


Figure 15

We have only to substitute bricks of different shapes and shades for the symbols of the four orders of counting, and we have brick pattern made to our hand. Figures 13, 14, and 15 represent such substitutions, slightly modified, in some cases, for the sake of greater variety or for greater ease of construction in the material employed.

Conclusion

This brief essay, being but an arbitrarily isolated fragment of a larger work, may seem neither important nor convincing. The patterns here shown, arrived at by such indirect methods, are for the most part such as might easily occur to the mind of any clever designer, but carried further these same methods are capable of producing results which mere cleverness could never compass.* The principle involved in this method of design is important. By definitely linking up design with numerical order, we rediscover the secret source of style and are enabled to fill the empty vessel of our imagination at the perennially flowing fountain of the world order itself. For art, however various, is ever the expression of this order. The highest function of art is to show it forth. The perfection with which this is accomplished is one measure of the excellence of any work of art.

*Such a result, for example, as is shown on page 57 of " Projective Ornament," derived from the magic path of a magic square of 8 by 8.

Note. Mr. Bragdon's work on "Projective Ornament" contains a chapter in which the derivation of ornament from magic squares is very fully discussed, particularly the forms derived from " magic lines." In this chapter he considers not only the usual forms of squares, but also some other very interesting types, including the lines made by the Knight's tour, familiar to chess players. All these lines are capable of producing ornamental patterns of considerable interest, which seem capable of use in various fields of decoration. In the present paper, Mr. Bragdon takes up a different method of using magic squares as a source of ornamental pattern, and one that should have even more possibilities, as it involves not only linear patterns, but surface decoration as well. It is to be hoped that other architects will become sufficiently interested in this phase of design so that a general attempt may be made to develop other possible applications. — Editors.

The New York State Law for the Registration of Architects

By W. P. BANNISTER

A LAW restricting the practice of any profession or regulating business should be subject to careful analysis, as it involves the fundamental right of a person to earn a living. The framers of the architect's registration law in the state of New York had clearly in mind the evil of unjust restrictions, and believed the only justification for such a law to be the raising of the standards of the profession and the protection of the public from the incompetent.

The law does not deprive any person of the right to prepare plans for a building or structure, nor does it prevent any department having jurisdiction over the erection of buildings from considering and approving plans for the erection of buildings which have been prepared or submitted by an applicant not having the title of architect. It leaves the question as to who shall be employed to prepare plans and supervise work entirely to the person desiring such service; but it does prohibit the use of the title of Architect or Registered Architect, except where such right has been conferred by law.

Particular attention is called to this feature of the law, since there is among architects a feeling that no law enacted in their behalf should in any way seem to trespass upon the right of a structural engineer or builder; but this places upon the engineer and builder a responsibility in the conduct of their own occupations.

If the architect recognizes the competent structural engineer and builder, the public should be protected from the incompetent in such technical occupations by minimum standards fixed by the competent and having the force of law, otherwise those who believe that the law does not fully meet the situation are justified in their criticism.

There also arises the question of a citizen's right to insist upon recognition of æsthetic values, certainly as far as relates to its influence upon commercial values of environment. This principle is already recognized in governmental building by the establishing of Federal and Municipal Art Commissions, whose approval of the architectural merit of the proposed building is a condition precedent to its erection. The application of this principle should be extended carefully and justly, and is a factor that must be recognized by the framers of future laws requiring qualifications for those who design structures of any kind that are to be more or less permanent in their character.

The act to amend the general business law in relation to the practice of architecture in the state of New York became a law on April 28, 1915.

Let us first consider the provisions of the law for those who were entitled to registration under the waiver, that is, those who were actually engaged in the practice of architecture prior to the passage of the act; this involves both the architect and the draftsman.

The law requires that every person who was not styled or known as an architect prior to the passage of the act must obtain a certificate of registration to entitle him to use the title "architect." This provision applied to all draftsmen who had practised under the title of architect when the law went into effect. The law, however, permitted the Board of Examiners to consider an application for registration from such a draftsman provided he had been exclusively engaged in the practice of architecture for more than two years prior to the passage of the act, and that he could present such evidence of good character and competency as would justify the Board of Regents in issuing to him a certificate granting him the right to use the title of Architect or Registered Architect; but the law required such a draftsman to make application for registration prior to April 28, 1916.

The law also provides for registration under the waiver of those who were in practice under the title of architect prior to the passage of the act, provided that the applicant could submit satisfactory evidence as to character, competency, and qualifications. This provision made it possible for every competent architect in the state to become a registered architect. The constitution of the state does not permit of retroactive laws, so that the applicant who may have been denied registration still has the right to use the title as he used it prior to April 28, 1915, even though he was unable to present satisfactory evidence of ability to the Board of Examiners.

The above waiver provisions, which are essential in a just law, place a great responsibility upon the Board of Examiners; they are called upon to recommend the issue of certificates to persons of varying grades of ability without any minimum standard except such as they may consider just to the applicant considering the scope of his practice; then there is also the danger of granting a recognition to one applicant and not to another who may be a competitor, while the difference as to the essential requirements may be slight, but still enough to justify the Board in its action upon a judicial review. In New York State nearly two thousand applications for registration were made under these waiver clauses, the established architect recognizing the importance of the principle involved, those who desired to prove their right to recognition though not prominent in the profession, and possibly others who believe that there is some commercial advantage in state registration.

There are two provisions of the law which make examinations unnecessary if the Board is satisfied as to the competency of the applicant; while perhaps not in the order as indicated by the act, let us first consider the provision for registration when the applicant has been certified as an architect in another state or country where the standard of qualifications is the same, not lower than that of the state of New York. This compels the Board of Examiners to consider continually the standards required in other states or countries, that a comparison may be made before the acceptance of an application under this provision. It has the advantage, however, of requiring the Board to inform itself of the advances made in the requirements of similar Boards in other states or countries, and is therefore instructive and will lead eventually to a standardization of the minimum requirements of all

Boards, with the result that the term "architect" will have a clear definition in law; this definition has long been needed in our state and is much needed elsewhere.

The act also provides that the Board may accept as evidence certificates or diplomas in architecture from colleges having certain academic and technical courses that have been approved by the Board of Regents, provided that the applicant has had three years of practical training in the office of a reputable architect subsequent to his college course. This places in the Board of Regents the power to standardize the academic and technical training in architecture for all colleges as far as relates to registration in the state of New York, and will raise the standard of many schools which now have courses in architecture which, while good, fall short of the requirements of the law. All such schools will undoubtedly endeavor to so develop their course that their diplomas will have a real value.

The act provides that applicants may be granted the right to practise under the title of architect by examination; in fact there is no other way of obtaining such right except as above noted, *i.e.*, by certification in another state or country and by certificate or diploma from an approved college with subsequent experience.

The examinations are conducted by the Board of Regents, the questions being prepared by the Board of Examiners. As a preliminary to examinations in architecture the applicant must pass a Regents examination as to his academic training; generally this comprises a high school course or its equivalent, with additional requirements in several courses which are usually included in the first two years of a college course. It is not essential that this education shall be acquired in a school or college, the door is left wide open for the ambitious man whose circumstances do not permit his attendance at a high school or college, but subsequent to such high school course or its equivalent he is required to have had five years' experience in the office of a reputable architect. The examination for such an applicant covers his knowledge of the history of architecture, historical styles, plan and design, construction including knowledge of the properties of materials, electric, heating, and mechanical installations, and specifications, contracts, laws and ordinances and other business requirements relating to the practice of architecture. The examinations are particularly directed to the ascertainment of the information and intelligence of the applicant as an adviser to the owner, rather than strictly technical in character.

The above summary of the law indicates its broad scope and the efforts of the framers to do justice to all engaged in the practice of architecture, and clearly defines the required education of those who desire to be styled architect.

The administration of the law rests with the State Education Department, the Commissioner of which acts as executive for the Board of Regents of the University of the state of New York, which is the ruling body in all matters involving education in the state. The Regents exercise similar control over medicine, law, and many other professions requiring educational attainments, wherever laws have been made requiring registration. The Board of Examiners in architecture is appointed by the Regents; it prepares and rates all examination papers, except those relating to academic tests; it recommends action with its findings, all final action being in the hands of the Board of Regents.

The fee for registration is $25, and no provision is made for an annual fee. The question of an annual fee may be considered from two points of view: it is objectionable to many architects who feel that it establishes a permanent charge for the right to practise an honorable profession, placing him in a class with those having special privileges in the highways and public places; from another point of view the annual fee involves annual registration which facilitates the enforcement of the law, as the record is corrected each year by such registration; the fee may be a nominal one, covering the cost of recording. In the absence of a fee in New York it is the intention of the administration department to furnish lists of registered architects to all reputable organizations of architects throughout the state.

The above outline of the New York law indicates the principal points which were in the minds of its framers; but the subject is a broad one, and much thought and effort will be required to develop this and similar acts in other states and countries.

Let us consider the relation of the architects in this state to those engaged in practice in other states. Ten states of the Union have sought by law to define the academic and technical requirements of those who desire to use the title architect. It seems perfectly possible and most desirable that the minimum standards for practice in all of the states should be the same; but there are the states which have no standards whatever, where any one may call himself an architect, and competent architects residing in such states are under the necessity of taking examinations in neighboring states before being permitted to practise in such states. This seems to be a restriction upon their right, but the answer is clear — the obligation rests upon them to qualify by law in their own state. The minimum standard should be established in every state and country; it should be the same standard; it should be raised from time to time to meet the economic and æsthetic advances. The approach to public perception of the fundamentals of our profession must be prepared by the members of our profession at much personal sacrifice; the goal, that is, the combination of the beautiful, the substantial, and the social, is worthy of all effort.

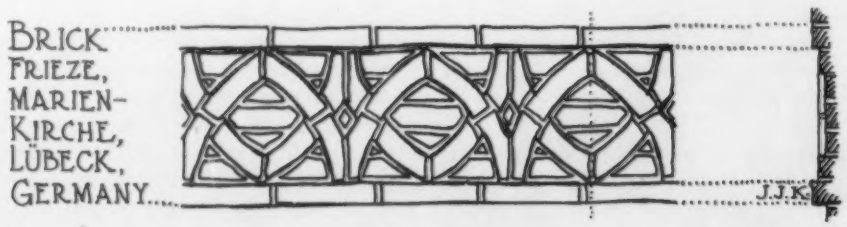
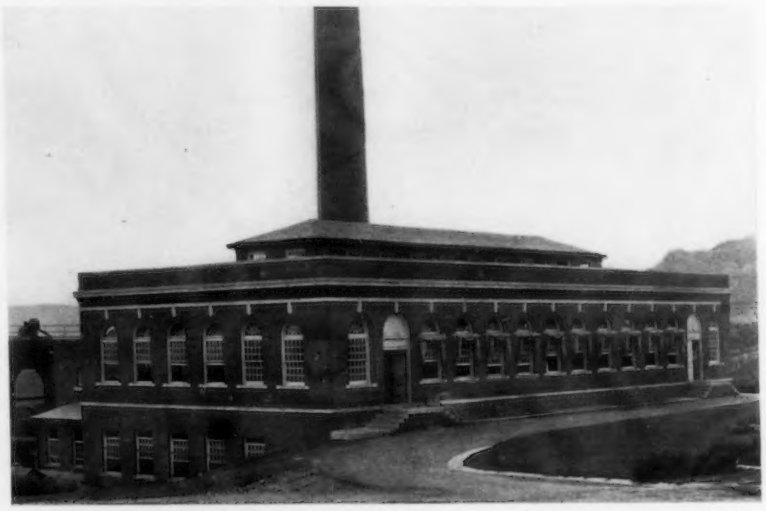


PLATE DESCRIPTION

KITCHI GAMMI CLUB, DULUTH, WIS. PLATES 37–39. This is one of the most important buildings recently erected in Duluth. The architecture is inspired from that of the Tudor period, though in no sense a copy of any particular building. The clubhouse faces on Superior street, with a frontage of some 218 feet. The loggias, opening on the terrace, about three feet above the level of the sidewalk, command a direct view of the lake. The front is of brick with stone trimmings, and the roofs of graduated slate. The main floor contains the lounge, joined by a gallery or lounge hall with the library and newspaper room at the opposite end of the building. This gallery is paneled in oak, with an arched ceiling of ornamental plaster, and a fireplace in an ingle under the stairs. The lounge is a spacious room 30 by 50 feet, with white painted trim, while the library has oak paneling and a tiled fireplace. The main dining hall, on the second floor, is decorated after the manner of the English college refectories, with wood paneling and an open timber roof. It has a musicians' gallery over the fireplace at one end, forming the principal feature of the decorative scheme. On the same floor are several smaller dining rooms. This floor also contains the kitchens and other services, and a number of bedrooms with accompanying baths, opening on a corridor separated from the public portion of the building.



Power House, Springfield State Hospital, near Sykesville, Md.
Parker, Thomas & Rice, Architects

IROQUOIS CLUB, CAMBRIDGE, MASS. PLATE 40. This building is located at the corner of Mt. Auburn and Holyoke streets, with its main entrance on the former. It is constructed of Harvard brick, with marble water-table and sills. The trim is of wood, the window balconies of wrought iron, and the fan ornament over the Palladian window of white cement. The main social room is the large club room on the first floor, reached from a hall which also gives access to the dining room. The latter extends through two stories and has black brick walls, laid all headers, and a high half-timbered ceiling. These rooms have floors of broad oak planks, secured by flat headed brass screws. The banquet room, on the second floor, has walls of rough finished plaster. It is very simply treated, with a semicircular arched ceiling, corresponding to the window on Mt. Auburn street. The windows in the rear of this room overlook the stairs and the first floor dining room.

S. K. CLUB, CAMBRIDGE, MASS. PLATE 41. The S. K. Club building adjoins that of the Iroquois Club, facing on Mt. Auburn street. It occupies a lot 53 feet wide by 74 feet deep, the rear of which forms a brick paved terrace. The exterior is of Harvard brick, with wood trim and a slate roof. The interior walls are of rough troweled plaster, tinted with water colors. The entrance leads up a short flight of steps to a central hall, from which other stairs lead down to the dining room and up to the lounge and the library. The lounge is 26 by 48 feet, and 16 feet high. It is the principal room of the building, and is provided with service facilities that allow its use as a banquet room when this is desired on special occasions.

APARTMENT HOUSE, 420 PARK AVENUE, NEW YORK, N. Y. PLATES 42, 43. This building is a characteristic example of the better class of apartments that have recently been erected in upper Park avenue. It is seventeen stories high, the principal material being brick, with a limestone base and terra cotta cornice. The details are inspired from examples of the Louis XVI and Adam styles, and display a degree of refinement unusual in apartment house design. The building occupies an entire block front, with a depth of only 60 feet, so that the lighting and ventilation of the apartments are remarkably good. The entrances are on Fifty-fifth and Fifty-sixth streets, instead of on the avenue, so as to avoid interference with through traffic. The Fifty-fifth street apartments have eighteen rooms and five baths each, and those on Fifty-sixth street thirteen rooms and three baths.

INFIRMARY, ST. PAUL'S SCHOOL, CONCORD, N. H. PLATES 44–46. This is a fireproof structure, except for the roof framing. The walls are of local water-struck brick with limestone trimmings, the basement being of concrete. The roof is covered with slate. On the ground floor are the administration and dispensary, on the first floor the dining room and kitchen, in the central wing, with the operating room above. The main block contains private rooms and a large general ward. Doors are arranged to swing so as to form a corridor joining the end wings to the main building, or so as to leave an open air passage between, permitting their use as isolation wards; the second floor of each wing is arranged for further isolation, with an independent outside entrance.

EDITORIAL COMMENT AND NOTES FOR THE MONTH

ALTHOUGH the end of the present war is not yet in sight, several of the belligerent nations are already considering methods for repairing the injuries it has caused, particularly in the regions that have actually been the scene of the conflict, and where many buildings have been greatly injured, and often completely destroyed. Whole towns in certain districts have been demolished, but the local pride of the inhabitants is so great that they are determined to return to their homes as soon as this can be effected, determined, moreover, that these homes shall be rebuilt in the form with which they are familiar, which they received from their ancestors, and which they hope to transmit to their descendants.

To this end an exhibition has recently been held in Paris, under the auspices of the Société des Architectes Diplômés par le Gouvernement, for the purpose of collecting and displaying the greatest possible number of documents dealing with the architecture of the invaded provinces, so that their reconstruction, when it takes place, may be carried out along the lines of the local traditions, rather than with buildings of no particular character or interest.

This movement is worthy of the highest commendation, and it is to be hoped that any American companies that may co-operate in the rebuilding of Belgium and Northern France will be guided by it in their designs for the structures to be erected, whether these are factories, dwellings, or monumental buildings. The smaller European towns, as well as the large cities, have for years shown such variety and distinctiveness of appearance that any loss of this character would be most unfortunate, even though immediate needs might be more quickly satisfied by the use of whatever type of structure is cheapest and easiest of erection. No one who has traveled in the rural districts of Western Europe can fail to regret the losses due to the war, and to hope that they may be repaired as fully as possible, however great the effort required.

This, of course, does not mean the deliberate construction of archæological falsities. In preserving the general character of the region, it would obviously be impossible, and scarcely desirable if it were possible, to rebuild every house and every village church in its original form. Many of these buildings presented features that, however interesting and picturesque, were hardly in keeping with modern methods of life, and were only retained because of their antiquity. The present offers an opportunity for much betterment, if the opportunity be intelligently used. Modern progress in sanitation, in city planning, in lighting and heating, should be allowed to have their due weight in this work; but the general character of the region should in all cases be preserved, so that the inhabitants, regaining their homes, may have such environment as they have grown to cherish, so that their children may be able to grow up with the same local pride as their fathers. No machine-made architecture should be allowed to stamp out the characteristics of a region that for centuries has had its own distinctive forms and traditions.

For these local peculiarities are not mere eccentricities of the unlettered peasant. They have grown up gradually from the climate, the nature of the soil, and the various contacts with the outside world. Their growth is frequently unconscious, but all the more vital because of its unconsciousness, and all the more certain to be missed by those who have once known it. We in America can form only an imperfect idea of the attachment of the European farmer or artisan to his home, and of the variety of forms that have grown up from the soundest of reasons. Local materials, local usages, local methods of building, — all contribute their quota to the formation of local pride that has been the most fruitful soil for the growth of all the arts.

It is therefore to be hoped that the efforts now being made to preserve these local forms and characteristics may be wholly successful. The American manufacturer who exports his products to Europe for use in this rebuilding should not try to force upon these older countries the appearance of our mushroom settlements; he should rather be guided by the needs of those whom he supplies, which he may easily learn, if he so wishes. Even apart from any altruistic ideas, this should be to his material advantage, for only in this way can a permanent market for American products be built up in Europe.

And this respect for local usage and characteristics, brought into prominence by the present war, may teach us another lesson. It is not only in Europe that such traditions exist. Our own country has its local traditions also, although they are at present being gradually submerged by the flood of cosmopolitanism whose most powerful helpers are the mail-order houses that spread their products indiscriminately throughout the land. It is to be hoped that the people of the United States may be aroused to the importance of this question, as has been the case in Europe, and that the lesson will be learned by those who build Dutch farmhouses in Florida or Mission bungalows in New England.

The University of Chicago Press has recently published the Scammon Lectures for 1915, delivered at the Art Institute of Chicago, under the title of "Six Lectures on Architecture," by Ralph Adams Cram, Thomas Hastings, and Claude Bragdon. (Price $2.00 net.) Mr. Cram's lectures are on The Beginnings of Gothic Architecture and The Culmination of Gothic Architecture; Mr. Hastings' on Principles of Architectural Composition and Modern Architecture, and Mr. Bragdon's on Organic Architecture and The Language of Form.